

905,196.

E. F. LINKE.
TYPE SETTING MACHINE AND THE LIKE.
APPLICATION FILED MAY 1, 1906.

Patented Dec. 1, 1908.
3 SHEETS—SHEET 1.

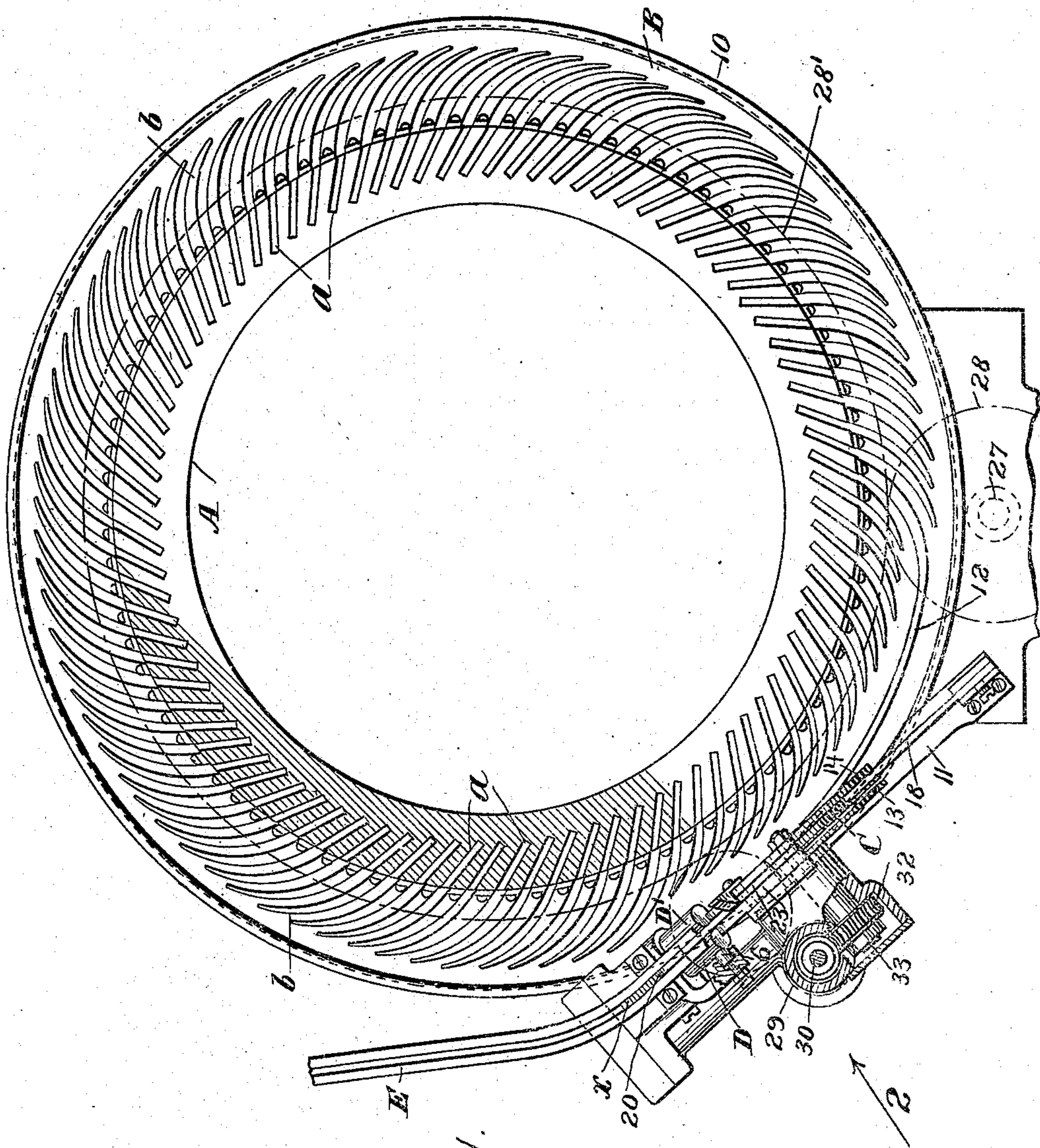


Fig. 1.

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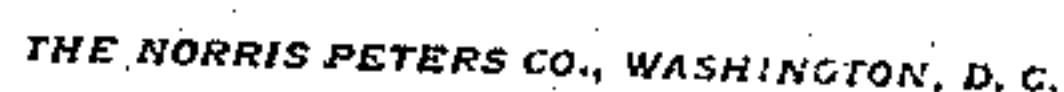
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by his Attys
Philip Sawyer, Rice & Kennedy

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3 SHEETS--SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 5.

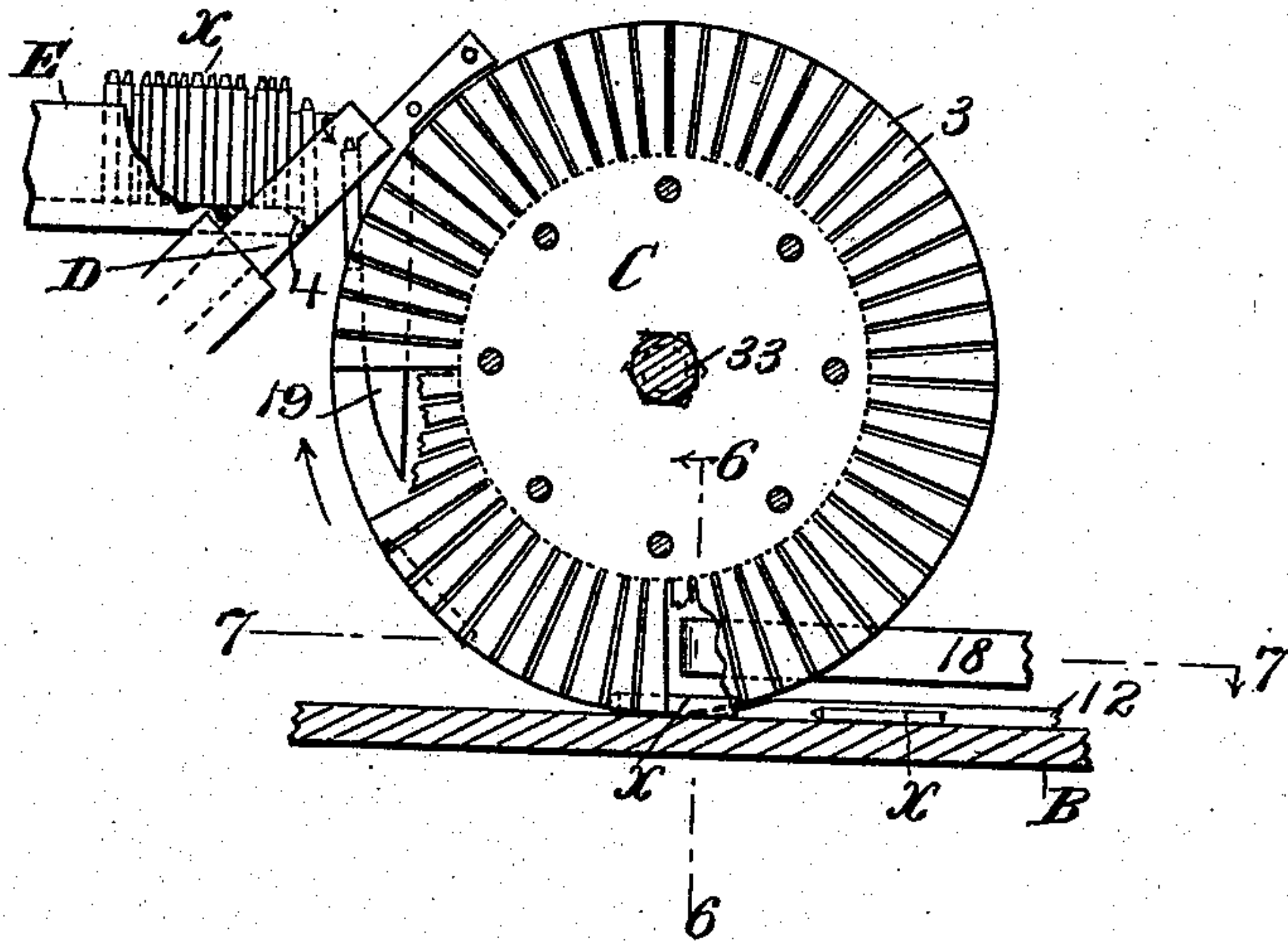


Fig. 6.

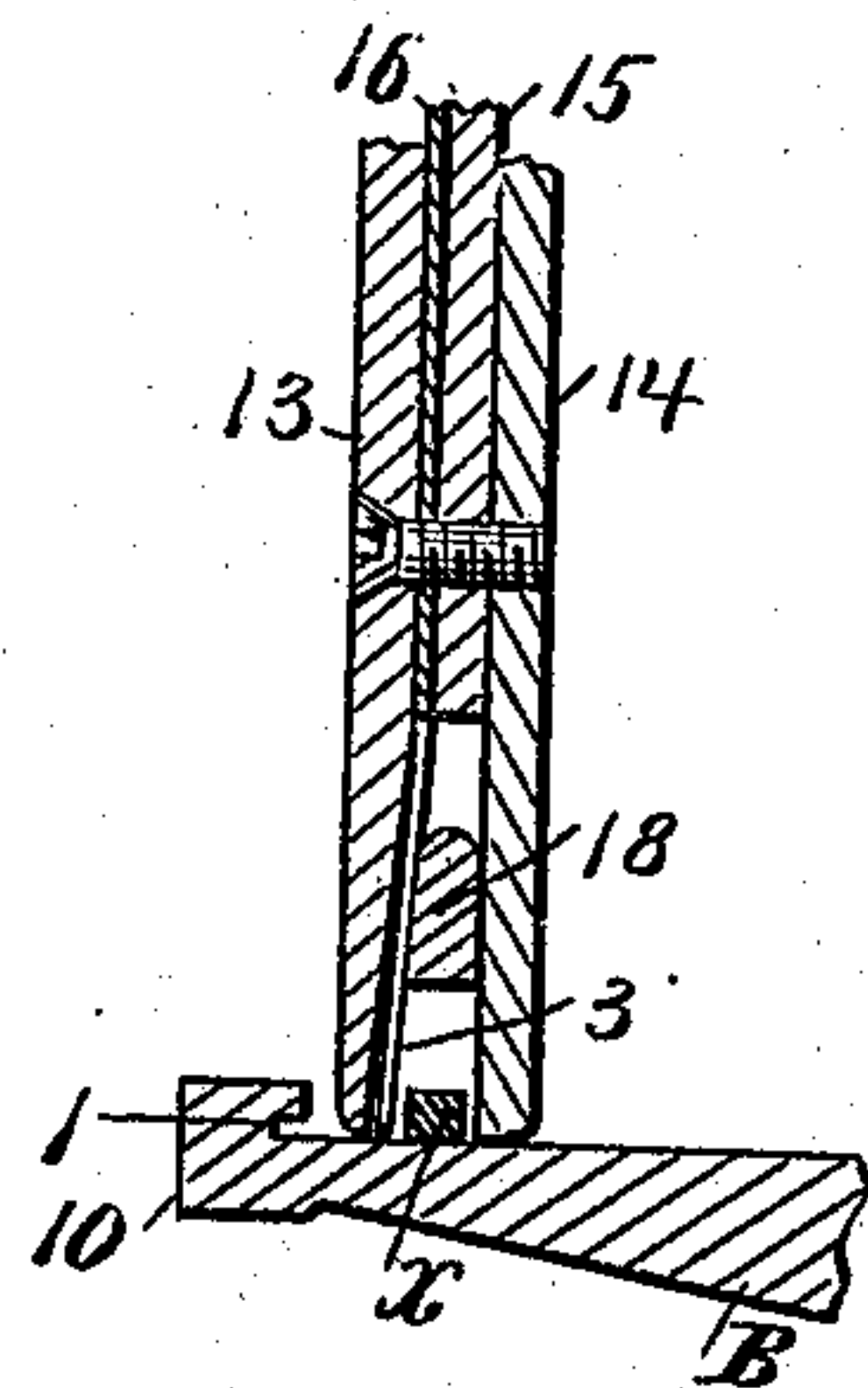


Fig. 7.

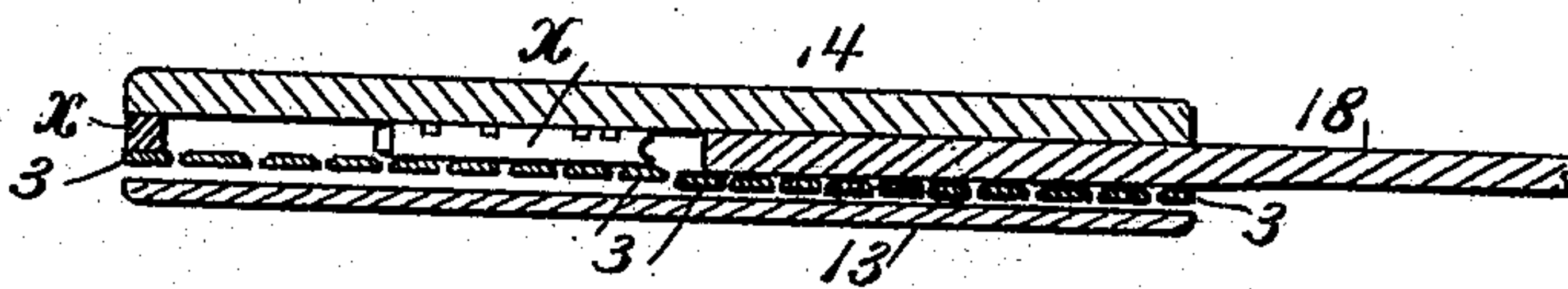
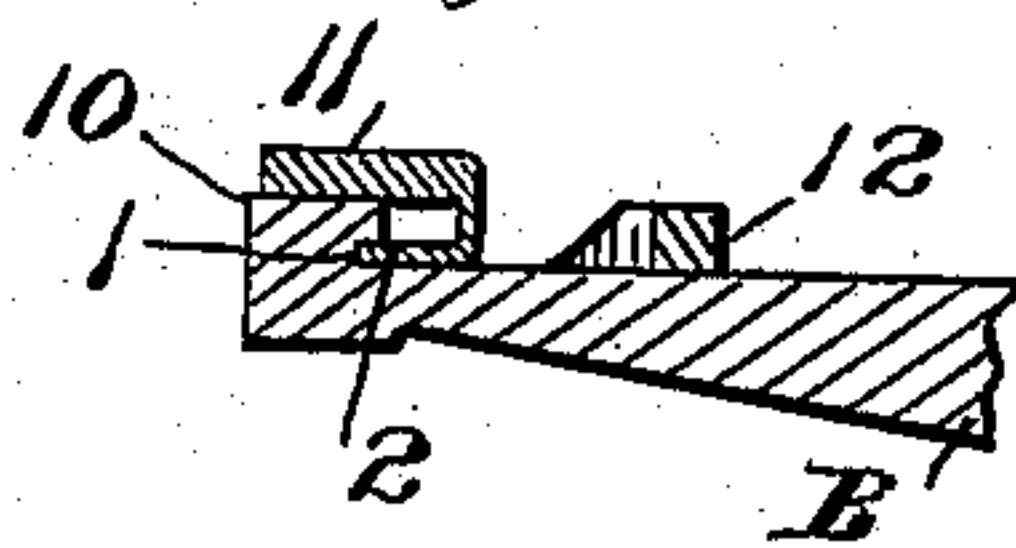


Fig. 8.



Attest:
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UNITED STATES PATENT OFFICE.

EMIL F. LINKE, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE UNITYPE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-SETTING MACHINE AND THE LIKE.

No. 905,196.

Specification of Letters Patent.

Patented Dec. 1, 1908.

Application filed May 1, 1906. Serial No. 314,675.

To all whom it may concern:

Be it known that I, EMIL F. LINKE, a citizen of the United States, residing at Hartford, county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Type-Setting Machines and the Like, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of the present invention is to provide improved devices for assembling in line the type received from the type channels of a type setting machine.

The invention, in most of its features, is applicable generally in type setting machines, but the invention has been made in connection with machines of that class employing a rapidly rotating type carrying disk or table, and certain specific features of the invention are limited to such a construction. The invention will, therefore, be illustrated and described as applied to such a machine.

For a full understanding of the invention a detailed description of a construction embodying all the features of the same in their preferred form will now be given in connection with the accompanying drawings forming a part of this specification, and the features forming the invention will then be specifically pointed out in the claims.

In the drawings—Figure 1 is a horizontal section of the composing cylinder of a type setting machine now well-known as the Thorne machine or Simplex machine, with the assembling devices of the present invention. Fig. 2 is a side elevation with parts broken away to show the construction. Fig. 3 is a horizontal section on the line 3 of Fig. 2. Fig. 4 is a detail section on the line 4 of Fig. 2. Fig. 5 is a side elevation of the assembling wheel and its co-acting devices, with some of the wheel blades broken away to show the construction. Fig. 6 is a vertical section of the wheel on the line 6 of Fig. 5. Fig. 7 is a horizontal section on the line 7 of Fig. 5. Fig. 8 is a detail cross section of the typeway and rotating table on the line 8 of Fig. 5.

Referring now to the drawings, A is the composing cylinder having the usual type channels *a* and fingers *b*, between which

fingers the type *x* are delivered onto the rotating table B. These parts, including the rotating table, may be the same as now well-known, except that preferably the table B has an upwardly extending flange or guard rim 10 rotating with the table against which the type are moved by centrifugal force as the table rotates.

At the point at which the type are to be delivered from the table B, a guide 11 is provided overhanging the rim 10 and having an inwardly extending finger 2 which projects into a groove 1 on the inner side of the guard rim at the edge of the rotating table so as to guide the type inward on the table and between the guide 11 and an inner curved guide 12, the two guides 11, 12 thus forming a typeway through which the type are carried by the rotating table. Between the guides 11, 12 is mounted the assembling wheel C, which rotates in a vertical plane with its edge just above the rotating table B. This wheel C is formed with a yielding disk by which the type are grasped so as to be carried upward by the wheel, and the disk with which this yielding disk co-acts is preferably made rigid. The yielding disk is preferably formed of spring fingers which may conveniently be made by slitting the edge of a metal disk.

In the preferred construction shown, the wheel C consists of two rigid metal disks 13, 14 separated by a disk 15 of less diameter so as to provide for action of the yielding disk, and a thin metal plate 16 clamped between disks 13, 15 and slit at the edge to form the spring fingers 3, all these parts of the wheel being shown as held together by screws 17. The plate 13 is beveled at the edge opposite the spring fingers 3 so as to allow the fingers to bend outward. The spring fingers 3 are bent outward away from the disk 14 so as to permit the type to be fed between the fingers and the disk 14 by a cam 18, which is positioned above the rotating table and extends inward between the fingers 3 and the disk 14 to about the central vertical plane of the wheel C. The fingers 3 are thus sprung outward by the cam 18 on the side of the wheel at which the type enter, as shown in Figs. 6 and 7 and, when they pass the cam 18, the fingers spring back to grasp the type against the disk 14, as shown in Figs. 4 and 7.

The type grasped and carried upward by the assembling wheel are guided from the assembling wheel by a cam guide 19 extending downward between the fingers 3 and the disk 14 so as to assure the leading ends of the type being carried upward into the grasp of two small rapidly rotating rolls D, D', these rolls being set at an angle so as to move the type upward and at the same time sidewise, as the rolls withdraw the type from the assembling wheel, and the rolls thus deliver the successive type into the assembling channel E standing on their feet. The feeding of each successive type into the composing channel E by the rolls D, D' advances the line of type in the assembling channel. An adjustable shoe 6 bearing against the roll D is shown for taking up wear.

The edge of the bottom plate of the composing channel is inclined, as shown at 4, the type passing up the incline as they are advanced by the rolls D, D'. Above the composing channel is a stop plate 20 to prevent the type being thrown upward too far, and this stop plate 20 has an inclined guide 21 on its rear side, against which a type tipping backward in being delivered to the channel, will rest so that the next type as it is fed in behind it, will carry it into the channel. The stop 20 and guide 21 are preferably formed of celluloid or some similar material to prevent injury to the face of the type, and these parts are preferably pivoted so as to swing upward from over the channel, as shown, for access to the channel and rolls D, D', a catch 22 being used to normally hold them down in acting position.

The guide 19 is preferably held in adjusted position, as shown, by being clamped between two plates 23, which are carried by bracket 24 on which the stop and guide plate 20, 21 is pivoted.

A curved guide 25 is preferably provided outside the wheel C below the rolls D, D', to guide to the rolls any type which may not be properly received by the wheel C but the head of which projects too far from the wheel. This guide 25 is preferably pivoted as shown and spring pressed by a spring 26 so as to yield as the type strike it, and the guide is preferably made of celluloid or similar material to avoid injuring the face of the type.

The driving mechanism may be of any suitable character, but the driving mechanism shown is simple and efficient and is preferably used. As shown, the rotating table is driven from vertical driving shaft 27 by gears 28, 28' on the shaft and table, and this gear 28' through an intermediate and gear 29 drives vertical shaft 30 which, through worm 31 and gear 32 drives the shaft 33 of the composing wheel C. This shaft 30 also, through worm 34 and gear 35 drives shaft 36 which, through worm 37 and gears 38

drives the shafts 39 of the rolls D, D'. The rolls D, D' are speeded up relatively to the composing wheel, so as to withdraw the type from the composing wheel and deliver them at a high rate of speed into the assembling channel.

In addition to the assembling wheel and coacting assembling devices, the invention includes an important feature in the rotating guard rim on the rotating table. To avoid the drag of the type on the stationary guard rim previously used, a guard belt has been employed, this guard belt moving with the table. This guard belt construction, however, is objectionable for various reasons, and the advantage of a rotating table carrying its guard rim is important as avoiding all drag on the type and the complication and liability to displacement and wear of the guard belt. This feature of the rotating table carrying its guard rim may be used with other means than my composing wheel for delivering the type from the table, and is thus claimed. A detail feature of importance, also, is the groove 1 on the inner side of the guard rim 10 in combination with the guide finger 2 entering said groove. This avoids any shoulder or obstruction for the type as they pass the point of the guide. It will be understood, also, that the assembling wheel and other assembling devices may be used with other suitable means for advancing the type to the wheel, and that the invention is not to be limited to the specific construction or arrangement of parts shown as forming my improved assembling devices, but that these may be modified while retaining the invention as defined by the claims.

The invention has been described as embodied in a machine for handling ordinary printers' type, but it will be understood that it may be applied also in machines for handling matrices, and the term "type" used herein is to be understood as including matrices. Certain features of the invention may be embodied, also, in devices for handling other small articles, and these features I claim for all such uses.

What is claimed is:—

1. A type carrying wheel having a spring disk, in combination with a cam for pressing the edge of the spring disk sidewise to receive the type and releasing it to grasp the type.

2. A type carrying wheel having a disk formed of spring fingers, in combination with a cam acting on said fingers successively to press the fingers sidewise and release them to receive and grasp the type.

3. A type carrying wheel having a rigid disk and spring disk, in combination with a cam for separating the spring disk from the rigid disk to receive the type and releasing it to grasp the type.

4. A type carrying wheel having a rigid

disk and a disk formed of spring fingers, in combination with a cam for separating the spring fingers from the rigid disk to receive the type and releasing them to grasp the type.

5. The combination with a typeway, of a type carrying wheel having two separated disks and rotating vertically above said typeway, and means for opening and closing the space between the disks to receive and grasp the type in said typeway.

6. The combination with a typeway, of a type carrying wheel having two separated disks and rotating vertically above said typeway, means for opening and closing the space between the disks to receive and grasp the type in said typeway, and a pair of feeding rollers to which the leading ends of the type are advanced by the wheel.

7. The combination with a typeway, of a type carrying wheel having two separated disks and rotating vertically above said typeway, means for opening and closing the space between the disks to receive and grasp the type in said typeway, and a pair of feeding rollers to which the leading ends of the type are advanced by the wheel, said rollers being inclined so as to withdraw the type from the wheel and move them sidewise.

8. The combination with a typeway, of a type carrying wheel having two separated disks and rotating vertically above said typeway, means for opening and closing the space between the disks to receive and grasp the type in said typeway, a pair of feeding rollers to which the leading ends of the type are advanced by the wheel, said rollers being inclined so as to withdraw the type from the wheel and move them sidewise, and an assembling channel above said rollers.

9. The combination with a typeway, of a type carrying wheel having two separated disks and rotating vertically above said typeway, means for opening and closing the space between the disks to receive and grasp the type in said typeway, a pair of feeding rollers to which the leading ends of the type are advanced by the wheel, said rollers being inclined so as to withdraw the type from the wheel and move them sidewise, a guide within the wheel for directing the leading ends of the type to the rollers, and an assembling channel above said rollers.

10. The combination with a typeway, of a type carrying wheel having two separated disks and rotating vertically above said typeway, means for opening and closing the space between the disks to receive and grasp the type in said typeway, a pair of feeding rollers to which the leading ends of the type are advanced by the wheel, said rollers being inclined so as to withdraw the type from the wheel and move them sidewise, a guide within the wheel for directing the leading ends of the type to the rollers, an assembling

channel above said rollers, and a type stop above the assembling channel.

11. The combination with a typeway, of a type carrying wheel having two separated disks and rotating vertically above said typeway, means for opening and closing the space between the disks to receive and grasp the type in said typeway, a pair of feeding rollers to which the leading ends of the type are advanced by the wheel, said rollers being inclined so as to withdraw the type from the wheel and move them sidewise, a guide within the wheel for directing the leading ends of the type to the rollers, an assembling channel above said rollers, a type stop above the assembling channel, and a stop behind the assembling channel to support a type tipping backward.

12. The combination with the vertically rotating wheel, and the rollers for delivering type from the wheel, of the yielding guide.

13. In a type composing machine, a horizontally rotating type carrying table having a guard rim carried thereby and rotating therewith.

14. The combination with a horizontally rotating type carrying table having a guard rim carried thereby and rotating therewith, of means for delivering type from the table.

15. The combination with a horizontally rotating type carrying table having a guard rim carried thereby and rotating therewith, said rim being provided with a groove, of a guide entering said groove.

16. The combination with a horizontally rotating type carrying table having a guard rim carried thereby and rotating therewith, an assembling wheel rotating vertically with its edge above said table, and means for guiding the type on the table to said wheel.

17. A carrying wheel having a spring disk and a rigid disk, in combination with means for moving the spring disk against the spring pressure and releasing it, and means for feeding articles to the disks.

18. A vertically rotating wheel having two disks, in combination with a cam for separating the disks against spring pressure to receive articles and releasing them to grasp the articles under spring pressure, and means for feeding the articles to the disks.

19. A horizontally rotating carrying table in combination with a vertically rotating wheel above said table having two disks, means for separating and pressing together the disks to receive and grasp articles fed by the table, and guides for directing the articles to the wheel.

20. A carrying wheel having two disks in combination with means for separating and pressing together the disks to receive and grasp articles, and rollers for delivering the articles from the wheel.

21. A carrying wheel having two disks, in

combination with means for separating and pressing together the disks to receive and grasp articles, a pair of feeding rollers, and a guide within the wheel for directing the leading ends of the articles to the rollers.

22. The combination with means for feeding articles, a carrying wheel having two separated disks and rotating vertically above said feeding means, means for opening and closing the space between the disks to receive and grasp the articles, and means for delivering the articles from the wheel.

23. The vertically rotating carrying wheel C, in combination with the inclined rollers D and the channel E.

24. The vertically rotating carrying

wheel C, in combination with the inclined rollers D and the channel E, and the stop 20 above the channel.

25. The vertically rotating carrying wheel C, in combination with the inclined rollers D and the channel E, stop 20 above the channel, and the inclined guide 21 behind the channel.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

EMIL F. LINKE.

Witnesses:

C. J. SAWYER,
J. A. GRAVES.