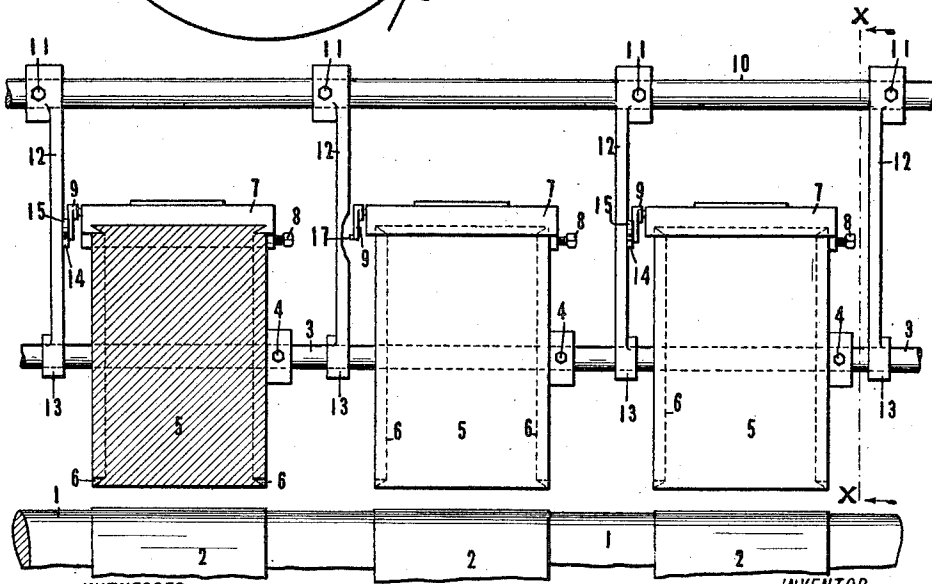
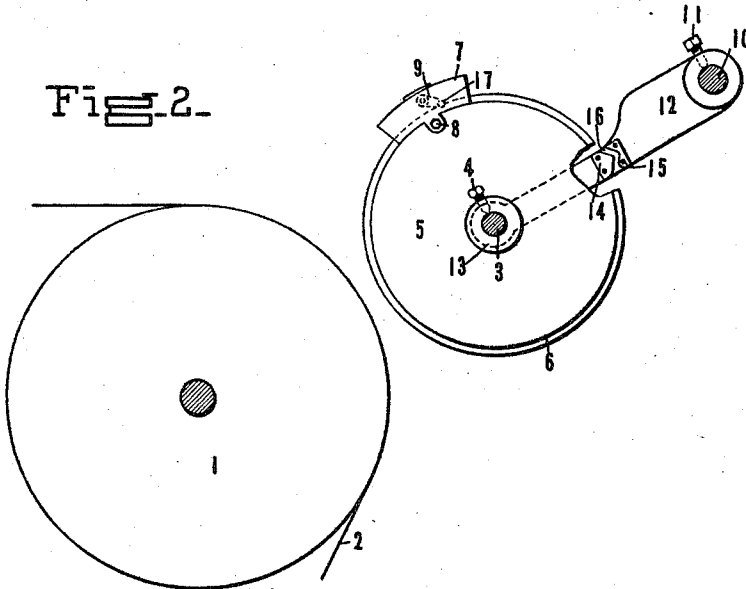


J. BENGOUGH.
NUMBERING APPARATUS.
APPLICATION FILED MAR. 25, 1910.

1,032,807.

Patented July 16, 1912.

Fig. 2.



WITNESSES:

Norbertus
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Fig. 1.

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JAMES BENGOUGH, OF NIAGARA FALLS, NEW YORK, ASSIGNOR TO THE CARTER-CRUME COMPANY, LIMITED, OF NIAGARA FALLS, NEW YORK, A CORPORATION.

NUMBERING APPARATUS.

1,032,807.

Specification of Letters Patent.

Patented July 16, 1912.

Application filed March 25, 1910. Serial No. 551,475.

To all whom it may concern:

Be it known that I, JAMES BENGOUGH, a citizen of the United States, residing at Niagara Falls, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Numbering Apparatus, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to numbering apparatus.

One of the objects thereof is to provide simple and practical apparatus of the above nature which is reliable in action under high running speeds.

Another object is to provide apparatus of the above nature in which the number of devices coacting with a given web support may be varied at will.

Another object is to provide in connection with numbering apparatus of simple and cheap construction and efficient action, practical means whereby the timing and arrangement of impressions may be adjusted.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing, wherein is shown one of various possible embodiments of this invention, Figure 1 is a side elevation of the same, certain parts being broken away in order to disclose the structure more clearly; and Fig. 2 is an end elevation taken on the line $x-x$ Fig. 1 in part diagrammatic and in part broken away.

Similar reference characters refer to similar parts throughout both views of the drawing.

In order to render certain features of this invention more readily and fully understood, it may here be noted that, on account of the relatively low selling price of the product of machines of the nature of those with which this invention particularly deals, it is important that they be run at the highest speed. If, however, it be attempted to run certain types of numbering mechanism at a high speed, it is found that there

is a tendency to skip numbers, due to incomplete actuation, and it will be clear that with a single number omitted the entire series is thrown out. It may also be noted that in the manufacture of sales books and the like, in which the apparatus of this invention is especially adapted for use, there are a great number of sizes, shapes and types of leaves to be numbered and lack of adaptability of one machine for a number of styles of leaves multiplies the number of machines required. The above and other defects are remedied in structures of the nature of that herein-after described.

Referring now to the accompanying drawing in detail, there is shown at 1 a cylinder which serves to support webs 2 running over the same. Mounted parallel to this cylinder is a shaft 3 having secured thereon, and longitudinally adjustable as by the set-screws 4, a number of rotary supporting members 5. The latter members are provided at their circumferences with groove 6, giving a dovetailed connection with the numbering devices 7, which are circumferentially adjustable and held in position as by the set-screws 8. These numbering devices may be of any desired interior mechanism and are provided with actuating cranks 9, adapted, upon a single oscillation and return, to change the exposed type to print the next succeeding number. Mounted parallel to shaft 3 is a rod 10 having longitudinally adjustable thereon, as by the set-screws 11, a number of cam supports 12, the lower ends of which are extended about and supported by shaft 3, as at 13. Upon the inner surfaces of these arms 12, that is, the surfaces toward the adjacent numbering devices, are cam members 14 and 15, which, together, provide a groove 16 adapted to receive the outwardly extending end 17 of the crank 9.

In the use of this apparatus a plurality of webs 2 are fed over the cylinder 1, and the shaft being suitably driven, the several numbering devices are rotated into contact with the web at suitable intervals. Upon each revolution of the members 5 the corresponding crank ends 17 enter the grooves 16 and are positively thrown upwardly and downwardly, this slight complete oscillation serving to advance the numbering type in a suitable manner. It will be seen that, even at the highest speeds, this actuation

occurs at every revolution and is complete, that is, the crank 9 is forcibly moved throughout its entire predetermined path of travel. By the adjustment of the heads about the members 5 the precise point at which the numbering occurs may be varied or adjusted at will, and the longitudinal adjustment of the members 5 gives a corresponding transverse adjustment of the impression upon the web. Moreover, by the longitudinal adjustments of all parts, the number of webs printed may be increased or diminished at will and each single numbering mechanism may be made to coast with any single web upon any part of the cylinder 1. It will also be seen that the rigid support of the arms 12, while not interfering with their adjustment, tends to hold them securely and accurately in adjusted position.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense. It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

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

1. In apparatus of the class described, in combination, means for supporting and feeding a web, a shaft mounted parallel to said web feeding means, a rod parallel to said shaft, movable means connecting said rod and shaft for determining their relative position, a member mounted upon and rotating with said shaft, a numbering device operatively associated with said member comprising a part adapted upon a predetermined movement to change the type exposed, and means adapted positively to move said part throughout said entire predetermined movement to a position for the next subsequent action.

2. In apparatus of the class described, in combination, means for supporting a web, a shaft mounted parallel to said web support, arms supporting said shaft, a member mounted upon said shaft, a numbering device mounted on said member comprising a part adapted upon a predetermined movement to change the type exposed, and means mounted upon one of said shafts supporting arms adapted positively to move said part throughout said entire movement to a position for the next subsequent action.

3. In apparatus of the class described, in combination, means for supporting a web, a shaft mounted parallel to said web support, a rod parallel to said shaft, normally stationary means connecting said shaft and rod, a numbering device mounted on said shaft comprising a part adapted upon a predetermined movement to change the type exposed, and positively acting cam means on said connecting means adapted to move said member throughout said entire movement to a position for the next actuation, said connecting means being movable to determine the relative position of the numbering device to the web on the supporting shaft.

4. In apparatus of the class described, in combination, means supporting a web, a numbering device comprising an actuating member, a shaft mounted parallel to said web support, a rod parallel to said shaft, a member mounted upon said shaft and carrying said numbering device into operative relation to said web, and a member mounted upon said rod and said shaft and holding a cam in the path of said actuating member, said cam being formed to move said actuating member and positively return the same to normal position.

5. In apparatus of the class described, in combination, means supporting a web, a shaft parallel to said web support, a numbering device, a member mounted upon and longitudinally adjustable along said shaft and having mounted thereon said numbering device in position to be brought against said web, a member adapted upon a predetermined movement to change the type exposed in said numbering device, and means adapted positively to move said member throughout said entire movement to a position for the next subsequent action.

6. In apparatus of the class described, in combination, means supporting a web, a shaft parallel to said web support, a numbering device, a member mounted upon and longitudinally adjustable along said shaft and having mounted thereon said numbering device in position to be brought against said web, said numbering device being adjustable about the circumference of the member upon which it is mounted, a member adapted upon a predetermined movement to change the type exposed in said numbering device, and means adapted positively to move said member throughout said entire movement to a position for the next subsequent action.

7. In apparatus of the class described, in combination, means adapted to support webs, a shaft mounted parallel to said supporting means, a plurality of members mounted upon and longitudinally adjustable along said shaft, a plurality of numbering devices respectively carried by said members against

said webs, and means adjustable in said longitudinal direction for actuating said numbering devices whereby the number of separate devices in operative relation to a single web supporting means may be varied at will.

8. In apparatus of the class described, in combination, means adapted to support webs, a shaft mounted parallel to said supporting means, a rod extending parallel to said shaft, a plurality of members mounted upon and longitudinally adjustable along said shaft, a plurality of numbering devices respectively carried by said members against said webs, a plurality of members extending from said rod to said shaft and adjustable in said longitudinal direction, and cams respectively carried by said last members and adapted to actuate said numbering devices whereby the number of separate devices in operative relation to a single web supporting means may be varied at will.

9. In apparatus of the class described, in combination, means adapted to support webs, a shaft mounted parallel to said web supporting means, a plurality of members mounted upon and longitudinally adjustable along said shaft, a plurality of numbering devices respectively carried by said members against said webs and respectively provided with actuating members adapted upon a predetermined movement to change the type exposed, and means adjustable in said longitudinal direction adapted to positively move said actuating members throughout their entire movements to a position for the next actuation.

10. In apparatus of the class described, in combination, means adapted to support webs, a shaft mounted parallel to said supporting means, a rod extending parallel to said shaft, a plurality of members mounted upon and longitudinally adjustable along said shaft, a plurality of numbering devices respectively carried by said members against said webs, a plurality of members extending from said rod to said shaft and adjustable in

said longitudinal direction, and positively acting cams respectively carried by said last members and adapted to actuate said numbering devices whereby the number of separate devices in operative relation to a single web supporting means may be varied at will.

11. In apparatus of the class described, in combination, means adapted to support webs, a shaft mounted parallel to said supporting means, a plurality of members mounted upon and longitudinally adjustable along said shaft, a plurality of numbering devices respectively carried by said members against said webs, and means adjustable in said longitudinal direction for actuating said numbering devices, said numbering devices being independently adjustable about the circumference of the members by which they are carried.

12. In apparatus of the class described, in combination, a member adapted to support a plurality of webs, a shaft mounted parallel to said member, a plurality of rotary members mounted upon said shaft and longitudinally adjustable along the same, a plurality of numbering devices respectively carried by said rotary members and adjustable circumferentially about the same, each of said numbering devices comprising an actuating member adapted upon a forward and return movement to change the type exposed, a rod mounted parallel to said shaft, a plurality of arms longitudinally adjustable upon said rod and supported upon said shaft, and positively acting cams respectively carried by said arms and respectively coacting with the actuating members of said numbering devices to move the same throughout their entire forward and return movement.

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

JAMES BENGOUGH.

Witnesses:

EDWARD KIRBY BOTTLE,
PETER V. KELLER.