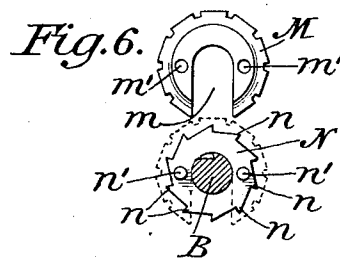
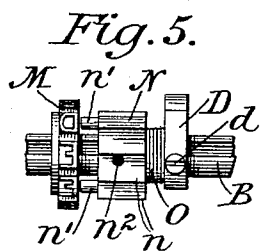
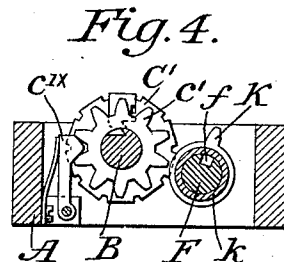
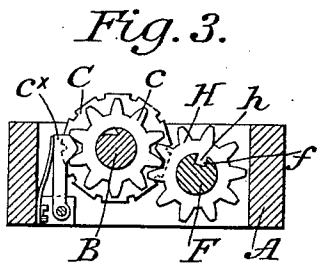
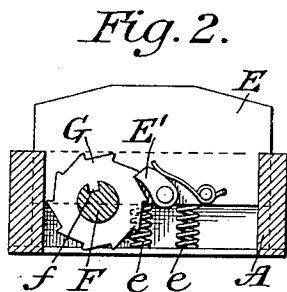
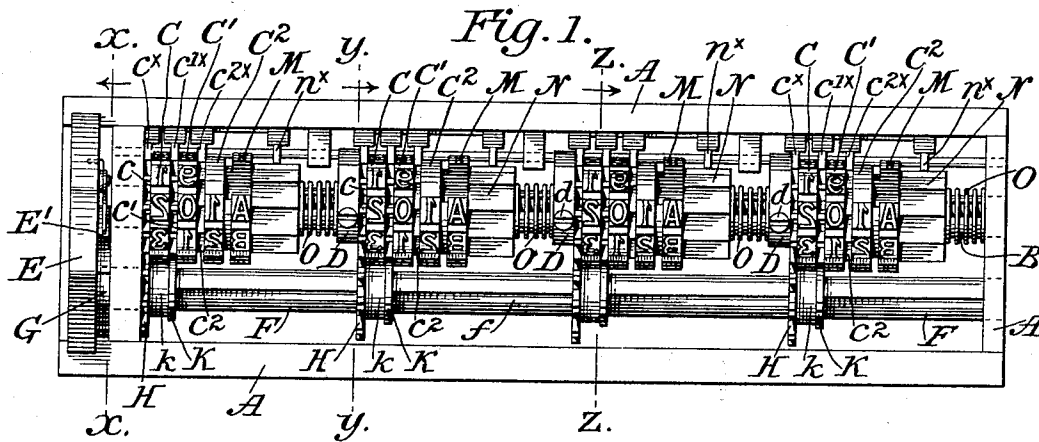


(No Model.)

F. SANDERS.
NUMBERING MACHINE.

No. 520,969.

Patented June 5, 1894.



Attest:
A. N. Jespersen,
A. Thidder.

Inventor:
Frank Sanders,
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Atty.

UNITED STATES PATENT OFFICE.

FRANK SANDERS, OF BROOKLYN, NEW YORK, ASSIGNOR TO JOSEPH WETTER,
OF SAME PLACE.

NUMBERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 520,969, dated June 5, 1894.

Application filed October 19, 1893. Serial No. 488,612. (No model.)

To all whom it may concern:

Be it known that I, FRANK SANDERS, a subject of the Emperor of Germany, and a resident of Brooklyn, in the State of New York, have invented certain new and useful Improvements in Numbering-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

This invention relates in general to printers' numbering machines such as are intended to be secured to the bed-plate of a press; more particularly the invention relates in part to the construction and arrangement of numbering machines which are intended to be used in the printing of theater tickets, coupons, and the like, wherein several numbering heads are secured in a common frame and are operated from a single plunger, and in part to the construction and arrangement of each numbering head, the improvements in this particular being applicable alike to single numbering machines and to machines of the particular class just referred to.

The general arrangement and construction of the numbering machine embodying my improvements will be particularly described hereinafter and the features of novelty will be pointed out in the claims.

In the drawings: Figure 1 is a top view of a numbering machine embodying my improvements and adapted for the simultaneous printing of a number of tickets, coupons or other similar articles. Fig. 2 is a transverse section on the line $x-x$ of Fig. 1, looking toward the left. Fig. 3 is a transverse section on the line $y-y$ of Fig. 1, looking toward the right. Fig. 4 is a transverse section on the line $z-z$ of Fig. 1, also looking toward the right. Fig. 5 is a detail plan view of a portion of one of the numbering heads removed from the frame. Fig. 6 is a detail view showing the supporting shaft in section with the ratchet-wheel thereon and the removable letter-wheel removed from the shaft, the operative position of the letter-wheel being indicated in dotted lines.

Within a frame A is fixed a shaft B upon which the number-wheels C, C', C², are mount-

ed to rotate freely in the usual manner. As many numbering-wheels may be employed as may be desired for each numbering-head, and as many separate numbering-heads or groups of numbering wheels may be arranged upon the shaft B as the length thereof will permit, the several groups of the series being separated by adjustable abutments D, D, which may be fixed on the shaft B by set-screws d , d . At some suitable point, preferably near the end of the frame, is located a vertically movable plunger E which is seated upon springs e , e , and is adapted to be depressed by the movement of some part of the press and to cause the successive movements of the units-wheel of each numbering-head. A rotatable shaft F is journaled in the frame A parallel with the fixed shaft B and has fixed thereto, adjacent to the plunger E, a ten-tooth ratchet-wheel G which is adapted to be engaged and actuated by a pawl E' which is mounted on the plunger E. The shaft F is also provided with a ten-toothed gear H for each numbering-head, said gear meshing with a ten-toothed gear c which is fixed to the units-wheel C, so that the units-wheel is advanced step by step at each forward movement of the shaft F. The gear H is adjustable on the shaft F so that its position may be shifted if the position of the corresponding numbering-head is changed and for this purpose the wheel may be formed with a projection h to engage a longitudinal groove f in the shaft F. I prefer also to drive the tens-wheel through the rotation of the shaft F and I therefore secure to said shaft a single toothed gear K which is adapted to mesh with a ten-toothed gear c' fixed to the tens-wheel C' and to advance said wheel one step at each complete rotation of the shaft F. For convenience in construction the gears H and K are secured to a common sleeve k so that said gears move always together when the position of the numbering-head is being changed. In machines which are intended particularly for the printing of tickets, coupons, and the like, it is not necessary that the numbering-head shall have a capacity for printing very large numbers and therefore in the present case I have represented the hundreds-wheel C² adapted to be turned forward by

hand only, said wheel, however, being provided with a ratchet-wheel c^2 which may be engaged by a hold-pawl c^{2x} to prevent any backward movement. Suitable hold-pawls c^x and c'^x are likewise adapted to engage the gears c and c' , to prevent accidental movement thereof.

In machines of the particular class referred to it is frequently necessary to employ a letter-wheel for the purpose of printing a letter in advance of the number of the ticket or coupon. It is necessary to provide for printing more than ten different letters and as it is not desirable to provide a single wheel with more than ten letters, I have devised means whereby one wheel may be readily replaced by another and shall be held securely in position upon the shaft during the printing of any of the letters upon its periphery.

It will be understood that the wheel to which I have referred might be provided on its periphery with numerals or any other characters and that in this specification and in the claims the term "letter-wheel" is used merely as a convenience.

The wheel to which I refer is indicated at M in Figs. 1, 5 and 6 and when in position for printing is adapted, like the other wheels of each number-head, to rotate freely upon the shaft B, whether the same be fixed or rotatable. It is formed with a slot m which extends from the center to the periphery and is of such a width as to permit the wheel to be removed from the supporting shaft or to be replaced thereon. In order that it may be held securely in position for printing I provide for its engagement with a collar which surrounds the supporting shaft. As represented in the drawings the wheel M is provided on its side with holes m' , m'' , which are adapted to be entered by pins n' , n'' , secured to the side of a collar N which encircles the shaft B and is longitudinally movable thereon. Between the collar N and the adjacent abutment D is placed a spring O which serves to press the collar N and the wheel M against the adjacent numbering-wheels and therefore to hold the wheel M in engagement with the collar N, as well as to hold the group of wheels in proper position against the next abutment and thereby to permit the several groups to be shifted and disposed as desired.

It is immaterial how the letter-wheel is advanced to bring the successive characters upon its periphery into the line of print, but in a machine of the special class referred to, the letter-wheel will ordinarily be turned forward by hand as required by the work to be done. In order that any backward movement of the wheel may be prevented the collar N may be formed about its periphery with ratchet-teeth n , n' , which may be engaged by a hold-pawl n^x . The collar N may be provided with a hole n^2 by means of which the collar N may be engaged by some suitable

tool and moved back, as represented in Fig. 5, to permit the removal of the letter-wheel, as shown in Fig. 6, and which serves also as a mark to indicate the position of the letter-wheel.

The mode of use and the operation of the several features of my improved numbering machine will be understood clearly from the foregoing description. It may be noted, however, that the means for actuating the numbering-wheels and the means for permitting the removal of the letter-wheel are applicable no less to a single numbering-head than to a machine in which a series of numbering-heads are employed, except so far as provision is made for the adjustment of the several numbering-heads in the supporting frame.

I claim as my invention—

1. In a numbering-head, the combination of a shaft, a wheel mounted thereon and slotted to its periphery to permit of its removal from said shaft, and means to hold said wheel in position on said shaft, substantially as shown and described.

2. In a numbering-head, the combination of a supporting shaft, a wheel mounted on said shaft and slotted to its periphery to permit of its removal therefrom and a collar encircling said shaft and adapted to engage said wheel, substantially as shown and described.

3. In a numbering-head, the combination of a supporting shaft, a wheel mounted on said shaft and slotted to its periphery to permit of its removal therefrom, a collar longitudinally movable on said shaft and adapted to engage said wheel, a fixed abutment, and a spring between said abutment and collar to hold the latter in engagement with the wheel, substantially as shown and described.

4. In a numbering-head, the combination of a supporting shaft, a wheel mounted on said shaft and slotted to its periphery to permit its removal therefrom, a collar encircling said shaft and adapted to engage said wheel, said collar having a series of ratchet teeth, and a pawl adapted to engage said ratchet-teeth, substantially as shown and described.

5. In a numbering machine, the combination of a frame, a shaft mounted therein, a series of groups of numbering wheels mounted on said shaft, a corresponding series of abutments adjustably secured to said shaft and a corresponding series of springs interposed between the abutments and the adjacent numbering-wheels on one side, whereby the groups of numbering-wheels may be disposed as desired and be held in position, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK SANDERS.

Witnesses:

WILLIAM WENZ,
A. N. JESBERA.