

W. H. SMITH.
NUMBERING HEAD.
APPLICATION FILED AUG. 3, 1910.

986,234.

Patented Mar. 7, 1911.

Fig. 1.

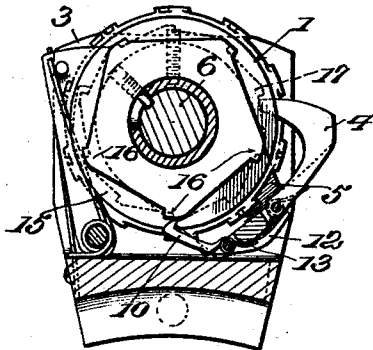


Fig. 2.

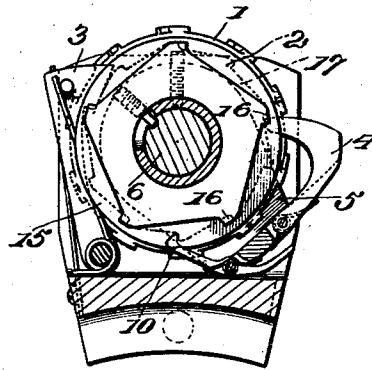


Fig. 3.

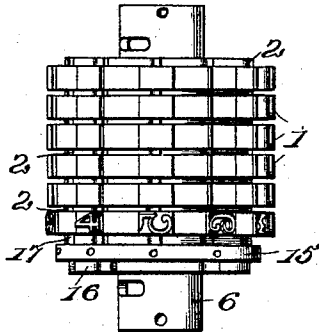


Fig. 4.

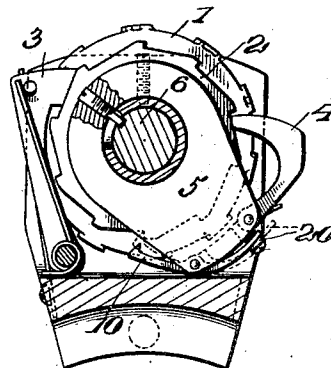


Fig. 5.

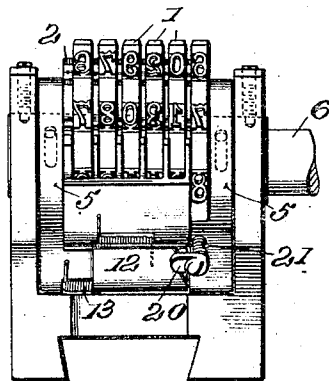
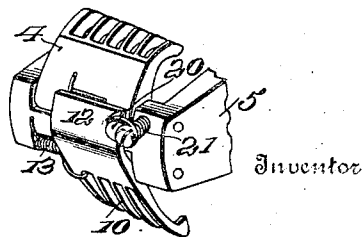


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

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NUMBERING-HEAD.

986,234.

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Patented Mar. 7, 1911.

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To all whom it may concern:

Be it known that I, WALTER H. SMITH, a resident of Niles, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Numbering-Heads: and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

It is well known that in starting the operation of a numbering machine, or a press using numbering heads, it is necessary for the operator to thoroughly ink all the heads, that is, each and every character of each die-wheel of each numbering head for printing. This is ordinarily accomplished by manually advancing each die-wheel one point and then running the press with the ink rolls duly set for several revolutions. This inks all the numbers of one row. Then the die-wheels are severally advanced, one at a time, each one number, and then the new row is inked. This operation of advancing by hand each number of each die-wheel and inking each row is repeated as many times as there are characters around the die-wheels. In high class work it is necessary to ink the die-wheels from five to seven times in order to secure uniformity in print. This inking operation consumes much time, especially on presses where there are a plurality of heads.

The primary object of my invention is to provide each numbering head with means for automatically turning all the die-wheels in unison so as to advance all of the die-wheels conjointly in each operation without changing the numbers in any row, thus enabling all of the characters to be inked in a comparatively few operations. And a further object is to provide simple and highly efficient means for controlling such attachment.

In the accompanying drawings, Figure 1 is a side elevation, with parts in section, showing a numbering head equipped with my improvement. Fig. 2 is a similar view showing the parts in operative position. Fig. 3 is a plan view. Fig. 4 is an elevation partly in section showing a slight modification. Fig. 5 is a rear view and Fig. 6 a fragmentary perspective view of the parts shown in Fig. 4.

Briefly stated, my invention comprises

means normally inoperative so as to permit the die-wheels to perform their usual function, the numbers being changed in each operation and the wheels successively rotated, but which when thrown into operation serves to effect the simultaneous rotation of all the die-wheels automatically without changing their relative positions.

I will describe my invention as applied to a standard numbering head, of a well known type, comprising a series of die-wheels carrying numerals or characters on their peripheries, the number being changed in each partial rotation of the actuating shaft.

The die-wheels are shown at 1; the ratchets at 2; the retaining pawls at 3; and the actuating pawls at 4. These actuating pawls project from a common plate which is mounted on a pawl carrier 5 which is hung concentrically to the axis of the die-wheels and which comprises two corresponding end members and a connecting portion which intersects the planes of the die-wheels, said pawl carrier being actuated by a shaft 6. This construction is well known and hence further description thereof is unnecessary.

Although I do not restrict myself to any special means for carrying out my invention, yet I have found that best results are obtained by mounting on the pawl carrier a second series of pawls 10 projecting from a common plate 12, which is pivoted on the carrier and on whose pivot is a spring 13, the office of which is to throw the pawls simultaneously into engagement with the ratchets of the several die wheels. Normally the pawls 10 are held inoperative so that they cannot engage the ratchets of the die-wheels in the reciprocation of the pawl carrier. The means for holding the pawls thus inoperative may be varied, and when the attachment is to be applied to numbering heads already in use different means may be used from that which is preferable in specially constructed numbering heads.

In Figs. 1 to 3 I have shown a wheel mounted on the same axis as the die-wheels, and parallel to the latter, having adjacent the periphery a series of cams 16, in number preferably about one-half the number of the teeth in the ratchets 2. This cam wheel also carries, on the side opposite to the cams, ratchet teeth 17 with which an extra retaining pawl will engage. When the wheel is turned so that one of the cams will engage

the outer one of the series of pawls 10 (see Fig. 1) all of the latter will be held inoperative and the die-wheels will work in the usual manner. When, however, the cam wheel is turned so as to free the pawl of the series 10 all of the latter will be swung inwardly under the action of spring 13 and will simultaneously engage the ratchets of all the die-wheels (see Fig. 2). When this occurs, at each operation of the shaft all of the die-wheels will be turned in unison without changing any die-wheel relatively to the others. Hence the numbers represented by the several rows will remain unaltered. After the inking operation is completed wheel 15 is given a partial turn so that one of its cams will engage one of the pawls of the series 10 and hold all of them inoperative.

For adapting my improvement to numbering heads already in use, it may be preferred to provide different means from that described for normally holding the supplemental pawls out of engagement with the die-wheels. For this purpose, various means may be employed, but I have found that a button 20 pivotally mounted on the pawl carrier answers every purpose. This button when placed in engagement with plate 12 of the supplemental pawls will rock the latter on their pivot to prevent them from engaging the ratchets, but when turned to free such plate the pawls will, by their spring, be thrown into engagement with the ratchets. I have shown the pivoted post of this button as surrounded by a spring 21 to prevent accidental disengagement from the pawl plate.

The advantages of my invention will be readily appreciated by those skilled in the art. It will be seen that by means thereof a great saving of time may be effected in inking all the numerals or characters and without changing the relation between the die-wheels so that in beginning a day's operation all of the characters may be inked preparatory to resuming numbering operations without any appreciable loss of time.

I wish it to be understood that I do not restrict myself to the exact means shown and described for carrying out my invention, since changes may be made without departing from the spirit of the invention.

I claim as my invention:—

1. In a numbering head having a series of rotatable die-wheels and means for changing the relative arrangement of said die wheels upon each operation of the head, means for causing all the die wheels to be rotated simultaneously without altering the relative arrangement produced by the first mentioned means.

2. In a numbering head having a series of rotatable die-wheels and means for changing the relative arrangement of said die wheels upon each operation of the head,

means for causing all the die-wheels to be partially rotated in each operation without altering the relative arrangement produced by the first mentioned means.

3. In a numbering head having a series of rotatable die-wheels and means for changing the relative arrangement of said die wheels upon each operation of the head, means for causing all the die-wheels to be rotated simultaneously without altering the relative arrangement produced by the first mentioned means, and means for normally holding the second mentioned means inoperative.

4. In combination with a numbering head having a series of rotatable die-wheels, means for changing the relative arrangement of said die wheels upon each operation of the head, a carrier for said means, and means carried by said carrier for rotating all the die-wheels in unison without altering the relative arrangement produced by the first mentioned means.

5. In combination with a numbering head having a series of rotatable die-wheels, ratchets therefor, a pawl carrier, and pawls for engaging said ratchets to effect the successive rotation of the die-wheels, means for actuating the pawl carrier, and means carried by the pawl-carrier for causing all the die-wheels to rotate in unison.

6. In combination with a numbering head having a series of rotatable die-wheels, ratchets therefor, a pawl carrier, and pawls for engaging said ratchets to effect the successive rotation of the die-wheels, means for actuating the pawl carrier, means carried by the pawl carrier for causing all the die-wheels to rotate in unison, and means for normally holding said latter means inoperative.

7. In combination with a numbering head having a series of rotatable die-wheels, ratchets therefor, a pawl carrier, and pawls for engaging said ratchets to effect the successive rotation of the die-wheels, means for actuating the pawl carrier, a second series of pawls mounted on the pawl carrier for engaging said ratchets for causing all the die-wheels to rotate in unison, and means for holding said pawls out of engagement with said ratchets.

8. In combination with a numbering head having a series of rotatable die-wheels, ratchets therefor, a pawl carrier, and pawls for engaging said ratchets to effect the successive rotation of the die-wheels, means for actuating the pawl carrier, a second series of pawls mounted on the pawl carrier for engaging said ratchets for causing all the die-wheels to rotate in unison, and a wheel mounted concentrically to said die-wheels having means for normally holding said second series of pawls inoperative.

9. In combination, a series of rotatable

die-wheels having each spaced-apart characters on its periphery, ratchets carried by said wheels, a pawl carrier, an actuating shaft for the latter, pawls mounted on said carrier for engaging said ratchets, a second series of pawls having a common portion mounted on said pawl carrier, said second series of pawls being designed to engage said ratchets, and a wheel mounted concentrically with said die-wheels and having a series of cams, less in number to the characters of the

die-wheels, for engaging one of the pawls of said second series for holding all of them inoperative.

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

WALTER H. SMITH.

Witnesses:

A. D. LOOP,
R. A. BREEZE.