

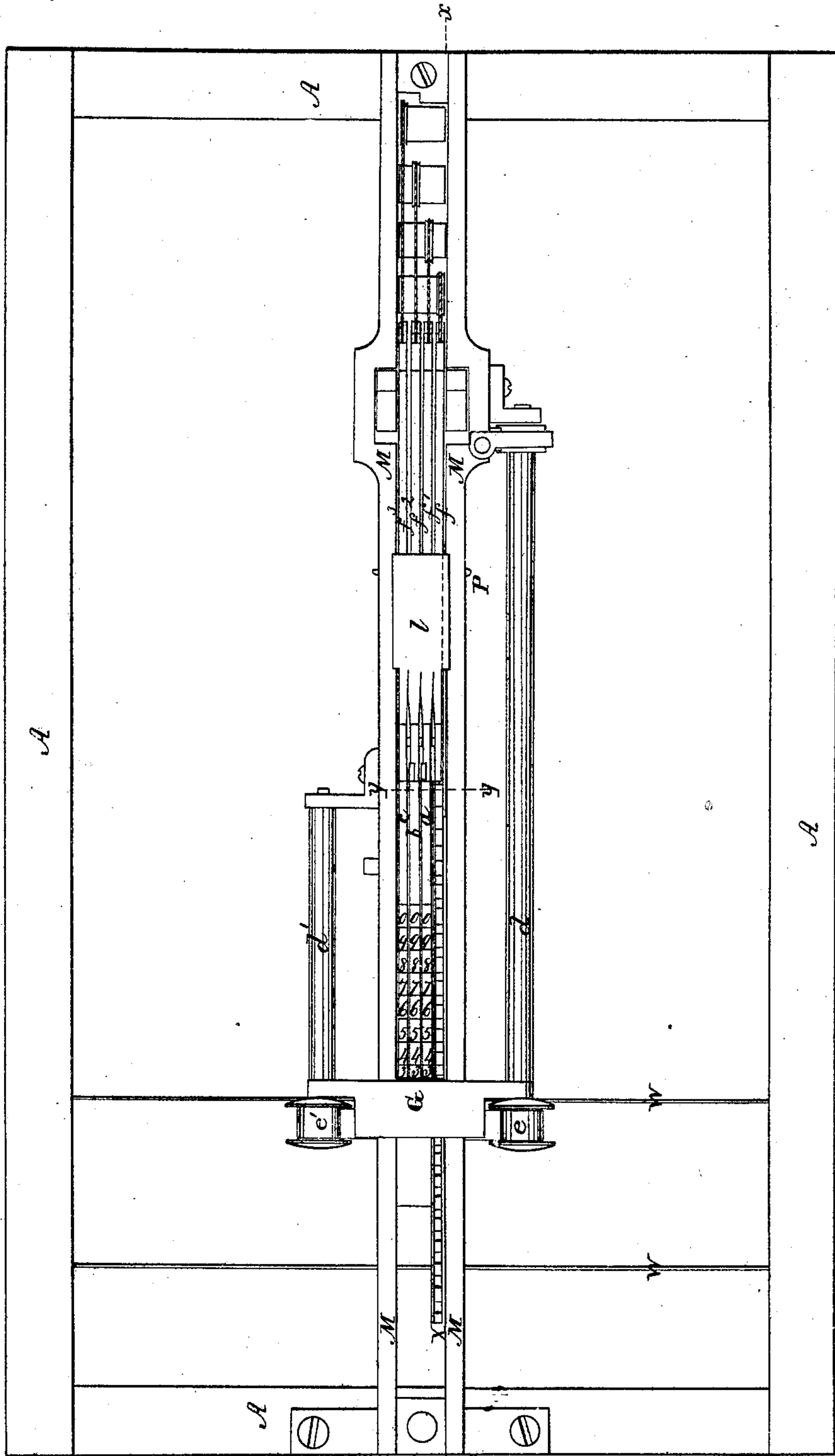
S. W. Soule & C. L. Sholes. Sheet 1 of 2 Sheets

Numbering Mach.

N^o 59675.

Patented Nov. 13. 1866.

Fig. 1.



Witnesses;

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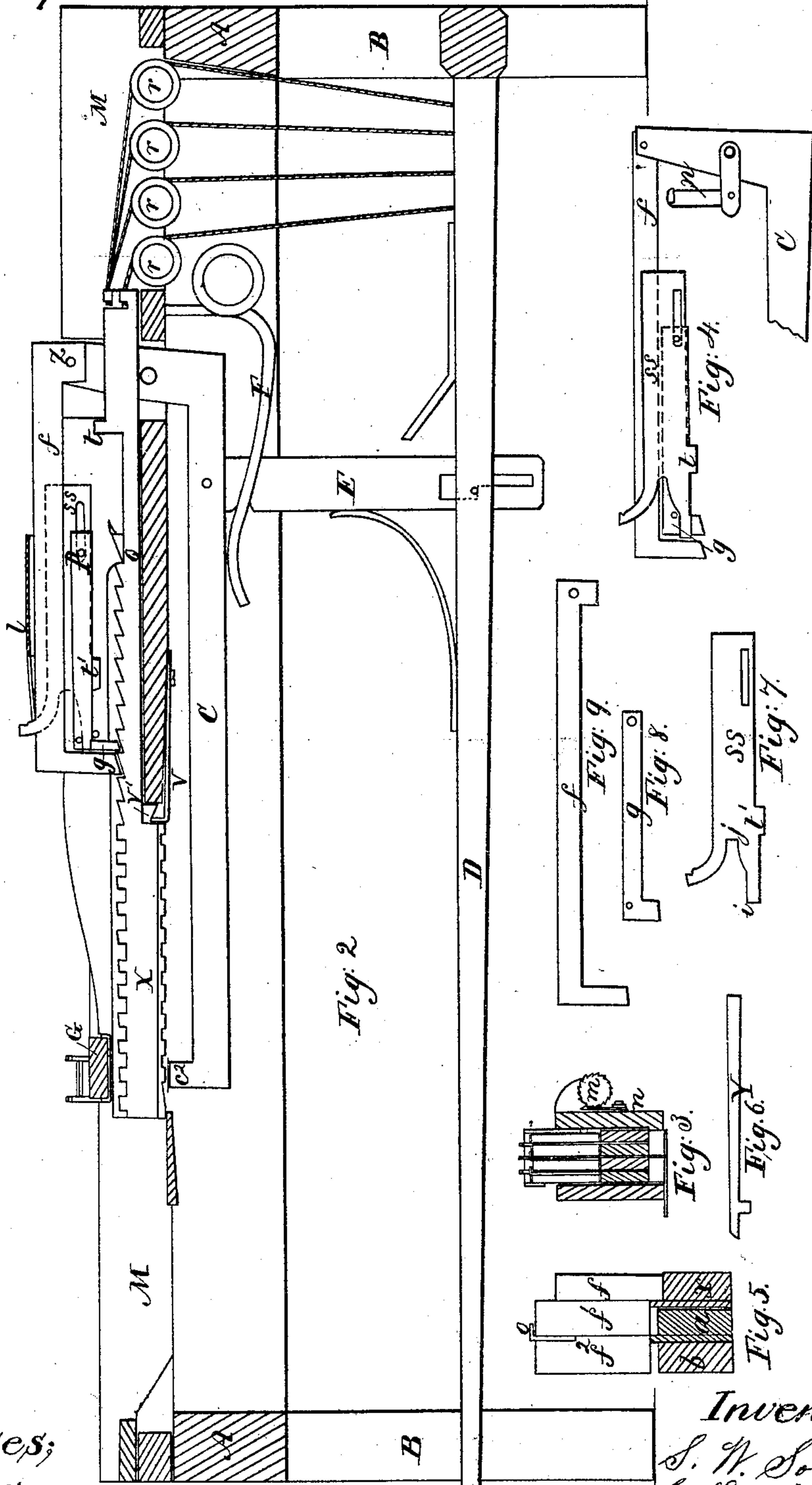
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By McDodge Atty.

UNITED STATES PATENT OFFICE.

SAMUEL W. SOULÉ AND C. LATHAM SHOLES, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN NUMBERING-MACHINES.

Specification forming part of Letters Patent No. 59,675, dated November 13, 1866.

To all whom it may concern:

Be it known that we, S. W. SOULÉ and C. LATHAM SHOLES, of the city and county of Milwaukee, in the State of Wisconsin, have invented a new and useful Machine for Duplicate and Consecutive Numbering, the object of which is to print the numbers on bank notes, drafts, theater and railroad tickets, coupons, &c.; and we hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

Figure 1 is a top view of the machine. Fig. 2 is a longitudinal vertical section on the line $x x$, Fig. 1. Fig. 3 is a transverse vertical section on the line $y y$, Fig. 1. Fig. 4 represents a moving-dog, slide, and set-dog in position. Fig. 5 is a transverse section on the line $y y$, Fig. 1, (magnified.) Figs. 6, 7, 8, 9, represent detached portions of the machine.

A represents the top rails, and B the legs, of the frame supporting the machinery. C is the platen-arm, and c^2 the platen, which is operated by the treadle D by means of the connecting-bar E. The spring F gives an impetus to the platen after it has been drawn down by the treadle and liberated, for the purpose of giving an impression. The trackway M is constructed with equivalent sides for the purpose of keeping the moving columns $a b c$ and the ratchet-bar x in their proper positions while they are moved forward and backward in the operation of numbering.

The moving columns $a b c$, Fig. 1, have raised figures on their under sides, arranged in numerical order, (by which the printing is done,) corresponding to the index-figures on their upper sides, and on the other end of the same a series of ratchets of the same length as the distance from the center of one figure to the center of the next.

The ratchet-bar x , Fig. 1, and the traveler x , Fig. 6, are used when it is desired to print several of the same number, as two, three, four, five, &c., of each number; but as it is contemplated making that the subject of a separate patent, the process of duplicating by these devices is not described in this specification.

The stay-block G supports the ends of the shafts $d d'$, on which are fixed the spools $e e'$

containing the inked ribbon, and also prevents the printing-columns $a b c$ from being thrown out of place by the force of the platen in the operation of printing. The moving-dogs $f f^1 f^2 f^3$, Fig. 1, being connected with the short arm of the platen at z , Fig. 2, and operating in the ratchets of the moving columns $a b c$, push them forward at each stroke of the platen. Underneath these moving-dogs are four set-dogs, Fig. 8, and g , Fig. 4, kept in place by the pin P, Figs. 1 and 2, which operate in the ratchets of the moving columns and prevent them from sliding back when the moving-dogs are withdrawn. Between the dogs are slides $s s$, Figs. 4 and 7, in the back end of which is a slot working on the pin P, and on the front end of the same an inclined plane, $i j$, which serves to raise the set-dogs by means of a pin on the latter, when the slide is moved forward, which is done by the projection t , Fig. 2, impinging on the projection t' on the bottom of the slide. At the back end of each moving column an elastic cord is attached, which operates over the rollers r , Fig. 1, and draws the columns back, bringing 1 again under the platen after all the figures on it have been once printed. In the working-machine weights or cords and springs are used instead of india-rubber cord to draw the moving columns back, and the printing-figures are upon the upper sides instead of the under sides of the bars. A cap-spring, l , Fig. 1, is attached to the trackway M by the pin P before mentioned, which serves to press the moving-dogs into their ratchets should they show any disposition to slide over them. A ratchet-wheel, m , Fig. 3, attached to the shaft d , Fig. 1, and operated by the catch n , Figs. 4 and 3, winds the inked ribbon upon the spool e and unwinds it from the other spool, thus bringing a fresh portion of the ribbon on the face of the type at each impression of the platen.

Fig. 5 is a cross-section on a larger scale, for the purpose of better representing the peculiar structure of the moving columns $a b c$ and the lugs o . In this figure, it will be observed that the moving columns $a b$ have a flange upon their sides projecting above the main body of the column on which the moving-dogs $f^2 f^3$ ride, for the purpose of preventing them from coming in contact with the ratchets un-

til the column *a* shall have been printed up to the figure 9. The lug *o*, Fig. 5, is attached to the moving-dogs $f^2 f^3$, by which means the moving-dog f^1 is made to carry the other two, in order to prevent them from operating in their ratchets, as will be hereinafter explained. A spring, *V*, Fig. 2, is attached to the under side of the trackway, which operates against the ratchet *V'* on the lower side of the moving columns, as will be explained in describing the working of the machine.

Having thus described the several parts, we will now proceed to describe the operation of the machine. Suppose, for that purpose, the machine to be set as in Fig. 1, in which it will be noticed that the moving columns are all in the same position, the same figures being opposite on each and the ends of the columns all being concealed underneath the stay-block *G*. The ratchet-bar *x* now being drawn forward till the moving-dog *f* rests in the ratchet *Q*, Fig. 2, where the flange attached to the ratchet-bar *X* is cut away, as shown in the drawings, which allows the next moving-dog f^1 to work in its ratchet instead of riding on the flange, the object to be numbered is now put in its proper position on the wires *w*, Fig. 1, and by depressing the treadle as far as it will go, the platen-arm *C* will be drawn down, the moving-dog f^1 , operating in its ratchet, will push forward the moving column *a*, bringing 1 under the platen; then, by letting go the platen, it will be forced against the type by the spring *F*, thus printing 1. By depressing the platen and continuing the operation, 2 3 4 5 6 7 8 9 will be printed in consecutive order. The figure 9 having been printed, the next moving-dog f^2 is now allowed to drop into its ratchet, (the flange on moving column *a* being cut away for that purpose,) when, at the next depression of the platen, the two columns *a b* are both pushed forward, bringing 10 under the platen. By depressing the treadle after 10 has been printed the projection *t* on the ratchet-bar *x*, Fig. 2, impinges on the projection *t'* on the lower part of the slide, pushing it forward, thereby raising the set-dog *g*, Fig. 4, and with it the moving-dog *f*, when the column *a*, being thus released, is drawn back by the elastic cord till the stop *V'*, Fig. 2, coming in contact with the spring *V*, prevents it from going farther, thereby bringing two 1s or 11 under the platen. By depressing the platen as before, and continuing the operation, the machine will print in consecutive order up to 90. When the number 90 has been printed, the fourth moving-dog f^3 would drop into its ratchet, (the previous column f^2 being pushed forward till the cut in the flange is in conjunction with the dog;) but this is prevented by the lug *o* on the moving-dog f^2 , by which means dog f^1 is made to carry the other two, thus allowing

91 92 93 94 95 96 97 98 99 to be printed. When 99 has been printed all the moving-dogs fall into their respective ratchets together, and at the next depression of the platen the three columns *a b c* are moved forward, at the same time printing 100. After 100 has been printed and the treadle again depressed, the projection *t* impinges on the projection *t'*, raising the set-dog and moving-dog, and thereby releasing the column *a*, as before explained, when it is drawn back and 101 is printed. By repeating the operation the machine will print in consecutive order till it reaches 999, and if another column be added it will print in the same manner 9999; and if five columns be used 99999 may be printed, &c.

The only labor required to operate this machine is merely that of working the treadle and placing the paper to be numbered. All the combinations are produced automatically by the machinery.

The same machine may be used to print any desired number of the same kind as is required in numbering railroad-tickets with coupons attached, simply by stopping the treadle in its downward movement a little short of the distance required to move forward the columns the length of a ratchet. In practice, it is found that the distance which it should be made to descend for this purpose is very naturally regulated by the foot better than by the use of any additional machinery.

What we claim, and desire to secure by Letters Patent, is—

1. The application of the numerals 1 2 3 4 5 6 7 8 9 0 to a series of plane reverse traveling columns or bars, the ten figures being arranged consecutively on each, as described, for the purpose of producing, by their combination, any desired number.

2. The construction and combination of the set-dogs *g* and the slides *s s*, by means of which the set-dogs and moving-dogs are raised from their ratchets, as described.

3. The combination of a series of moving columns containing the numerals 1 2 3 4 5 6 7 8 9 0 in numerical order, with the slides *s s*, moving-dog *f*, and set-dog *g*, by which they are operated to produce any combination of numbers, as described.

4. The attachment of the lug *o*, whereby the moving-dog f^1 is made to carry the other dogs $f^2 f^3$, &c., for the purpose described.

5. The construction of the moving columns *a b c* and ratchet-bar *x* with the flange, to keep the moving-dogs from impinging on their ratchets, as described.

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