No. 871,923. PATENTED NOV. 26, 1907.

J. DE B. GALWEY.

ARRANGEMENT FOR GIVING MOVEMENT TO AUTOMATIC NUMBERING MECHANISMS FOR PRINTING MACHINES.

APPLICATION FILED MAR. 1, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

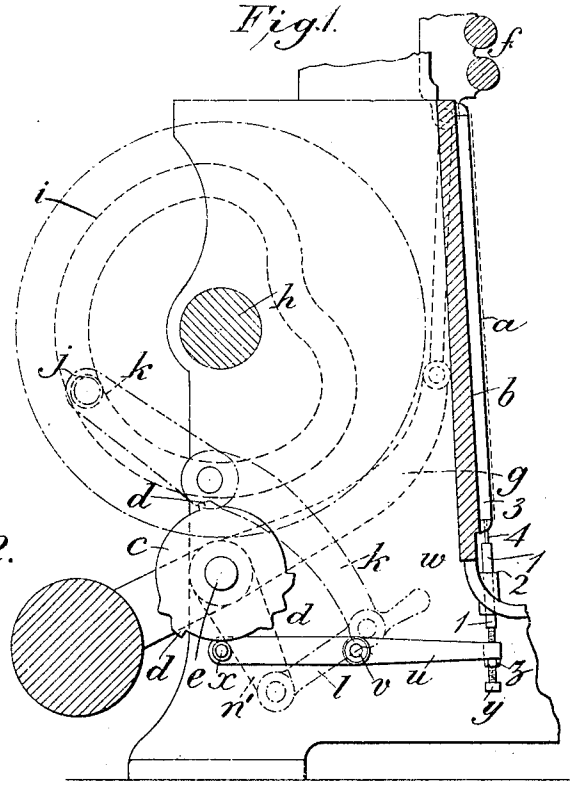


Fig. 3.

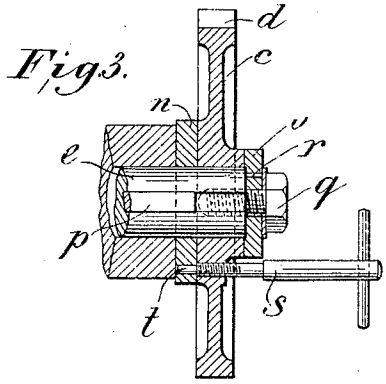


Fig. 2.

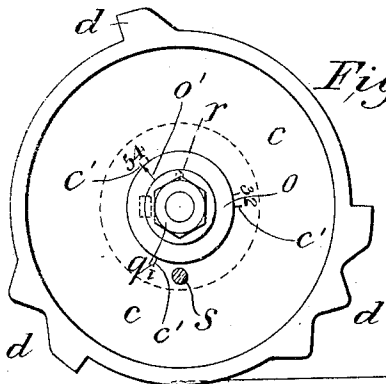


Fig. 4a.

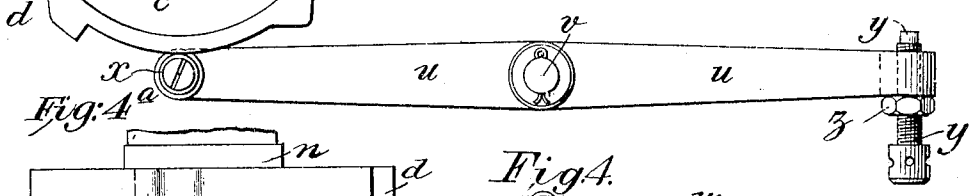
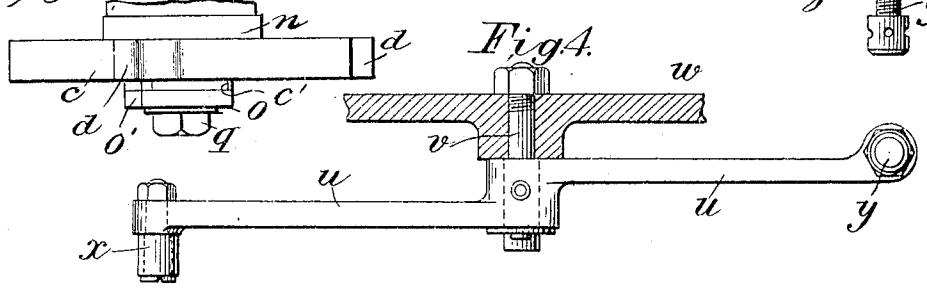


Fig. 4.



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ARRANGEMENT FOR GIVING MOVEMENT TO AUTOMATIC NUMBERING MECHANISMS FOR PRINTING MACHINES.

APPLICATION FILED MAR. 1, 1905.

2 SHEETS—SHEET 2.

Fig. 5.

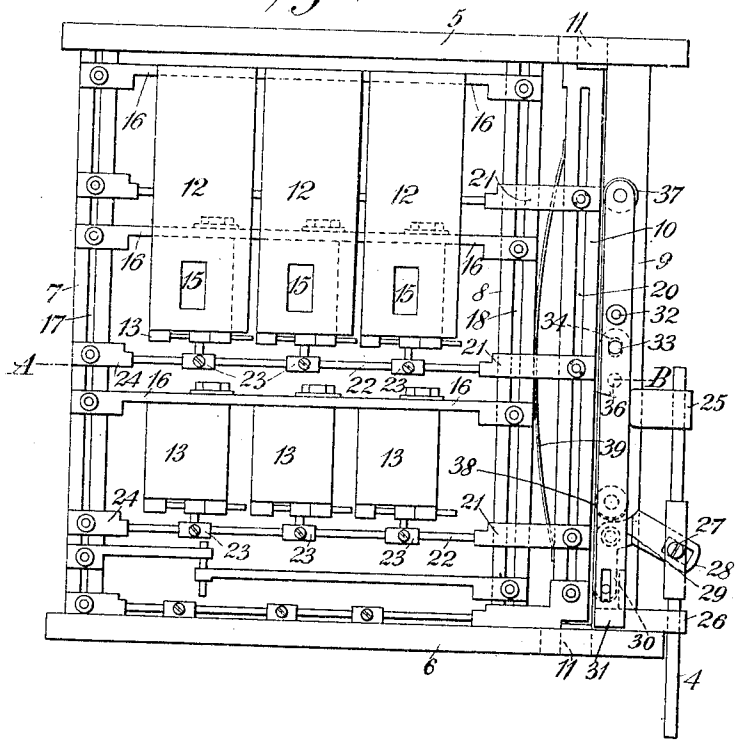


Fig. 7.

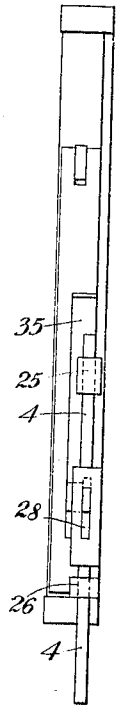
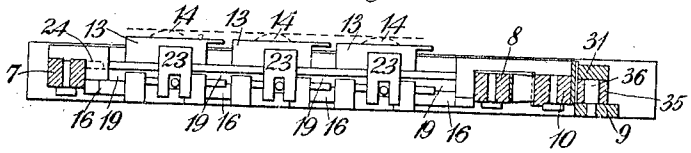


Fig. 6.



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ARRANGEMENT FOR GIVING MOVEMENT TO AUTOMATIC NUMBERING MECHANISMS FOR PRINTING-MACHINES.

No. 871,923. Specification of Letters Patent. Patented Nov. 26, 1907.

Application filed March 1, 1905. Serial No. 247,866.

To all whom it may concern:

Be it known that I, JOHN DE BURGH GALWEY, a subject of the King of England, residing at Dublin, Ireland, have invented a new and useful Improved Arrangement for Giving Movement to Automatic Numbering Mechanisms for Printing-Machines, of which the following is a specification.

This invention relates to printing machines adapted to print sheets or pages with two or more different numbers upon each in such a manner that the numbers printed at each successive impression will follow those last printed in their proper numerical or any other predetermined order, such as is sometimes required when printing the pages of check and receipt books, tickets or the like.

In printing machines of the kind referred to at present in use, the form is set up in an automatic numbering chase which is provided with suitable type-high numbering barrels the numbering wheels of each being of such a character as to print numbers that are not consecutive but in arithmetical progression, the constant difference between successive numbers being determined by the number of numbers to be printed at each impression. In printing, each numbering barrel is caused to turn to its next number by suitable mechanism in the chase which is actuated once during each cycle of the machine's operations. It has therefore been necessary heretofore to employ different sets of numbering barrels specially designed to suit the number of numbers it is desired to print at each impression.

The object of the present invention is to obviate the necessity for specially designed numbering barrels and to enable the ordinary consecutive or other suitable numberers to be used in conjunction with an improved actuating mechanism hereinafter described whereby one or more movements may be imparted to such numbering barrels between each impression so as to cause them to print numbers the desired interval apart.

In applying this invention to printing presses of the type in which a reciprocating pivoted platen coöperates with a stationary type-bed, the numbering barrel actuating mechanism is operated by a lever which is fulcrumed on a pin or its equivalent supported by one of the side frames of the press. This lever is provided with a suitable roller at one end, which coöperates with a cam having a series of projections on its periphery by means of which the said lever is actuated. This cam is caused to reciprocate once for each impression, and for this purpose is preferably mounted on the rocking shaft which carries the arms that actuate the inking rollers. This shaft is provided with two collars, between which the cam is located, the collar at the back being provided with holes which enable the cam to be clamped or otherwise fixed to it in any required position. The projections on the cam impart to the bearing roller at the end of the lever hereinbefore referred to, one, two or more movements for each double oscillation, according to the adjustment of the cam. The other end of the lever is fitted with a screw, whereby the amount of movement imparted to the actuating rod of the automatic chase, or analogous device may be adjusted. The outer collar and boss of the cam are preferably marked to show the correct adjustments for imparting one, two or more movements to the numbering mechanism for each impression of the platen.

It is advisable that fliers of the usual well-known form be adapted to turn the sheet from the receiving to another table, to give the proper sequence to the numbers, and allow the operator to check the accuracy of the work.

I will now proceed to more particularly describe this invention, with the aid of the accompanying drawings, in which

Figure 1 is a diagrammatic vertical section taken between the side frames of one form of printing press to which the said improvements are applied. Figs. 2, 3 and 4 illustrate in elevation, section and plan respectively parts of this invention shown in Fig. 1 on a larger scale. Fig. 4ª is a plan of the cam omitted from Fig. 4. Figs. 5, 6 and 7 are respectively a plan, a transverse section taken on the line A—B in Fig. 5 and an end view of an automatic numbering chase.

According to the construction shown in Figs. 1 to 4, in which this invention is shown as applied to that type of printing press in which the form *a* is carried by a stationary type-bed *b* with which a pivoted platen (not shown) coöperates, a cam *c* having suitable projections *d* on its periphery is adjustably

mounted upon the usual rocking shaft *e* by which the form inking rolls *f* are actuated through levers *g*. The shaft *e* receives its motion from the shaft *h* which is geared to the driving shaft, not shown in the drawing. Upon the shaft *h* a groove cam *i* is mounted which coöperates with a roller *j* journaled at the end of the lever *k* to which it imparts a reciprocating motion which it in turn transmits to the shaft *e* through the connector *l* and lever *n'*.

The parts *i, j, k, l, n'* shown in broken lines in Fig. 1 would not properly be seen in this view, being cut off by the plane of the section, and are therefore so represented to prevent confusion.

Upon the shaft *e* two collars *n, o*, are fixed, (see Figs. 2, 3 and 4[a]) the former by means of a key *p* and the latter by the stud *q* and a steady pin *r*. Between these collars the cam *c* is mounted which is provided with a clamping screw *s* adapted to engage holes *t* in the collar *n* to maintain it in its adjusted position, such adjustment being facilitated by suitable graduations *c'* on the boss of the cam and a coöperating mark *o'* or its equivalent on the outer collar *o*.

The projections *d* on the cam *c* are adapted to impart motion to the lever *u* which is fulcrumed at *v* to one of the side frames *w* and is provided at one end with a roller *x* and at its opposite extremity with an adjusting-screw *y* and nut *z* adapted to lock it in the adjusted position. This adjusting screw *y* engages a plunger 1 adapted to slide in a suitable guide 2 in the type-bed upon which is clamped an automatic numbering chase 3 or an equivalent automatic numbering device to which the requisite movement is transmitted through the said plunger 1.

According to the arrangement shown in Figs. 1 to 4 the plunger 1 actuates the rod 4 of an automatic numbering chase of well-known construction, shown in Figs. 5 to 7, which consists of a rectangular frame comprising two horizontal members 5, 6 three fixed transverse members 7, 8, 9 and a sliding beam 10 adapted to slide in guides 11 formed in the horizontal members 5, 6.

Between the members 7, 8 the form, which is preferably made up of engraved or other plates 12 and numbering barrels 13 whose printing surfaces 14 extend through apertures 15 formed in the said plates, is set up. These plates 12 are supported by suitable bearers 16 which are clamped to the members 7, 8 by means of bolts which pass through the slots 17, 18 formed therein. The bearers 16 are also provided with slots 19 which enable the numbering barrels 13 to be clamped thereto in any desired position. The sliding beam 10 is also provided with a slot 20 to which the stems 21 of rods 22 may be clamped at any desired point. The rods 22 are provided with drivers 23 which actuate the numbering barrels 13 in the usual well-known manner, and slide in guides 24 which are clamped to the slotted member 7.

The sliding beam 10 is actuated by the rod 4 which is adapted to slide in the guides 25, 26 and carries a pin 27 which engages the slotted arm 28 of the bell-crank lever 29 whose other arm 30 actuates the lever 31 fulcrumed at 32 to the member 9. This lever 31 is also provided with a pin 33 which engages a slot 34 in the lever 35 fulcrumed at 36 to the member 9. Both the levers 31, 35 are provided with rollers 37, 38 respectively which bear upon the sliding beam 10 and cause it to slide against the resistance of the spring 39 when the rod 4 is actuated by the plunger 1.

In practice the cam *c* is adjusted, by means of the graduations upon it, hereinbefore referred to, to the position in which one of its series of projections *d* will engage the roller *x* and through it impart to the lever *u* the desired number of movements during each reciprocation of the shaft *e* upon which the said cam *c* is mounted. These movements, as hereinbefore explained, are in turn transmitted through the plunger 1 to the numbering barrels 13 to which the requisite number of movements is imparted.

The cam *c* is reciprocated through only a small angle which does not permit the abrupt termination at the end of each series of projections *d* to reach the roller *x*. The cam *c* actuates the lever *u* both on its advance and return movement, the position of the cam being so adjusted that one half of the desired movements is imparted to the lever by the full movement of the cam in each direction. Thus, if it is desired to impart a single reciprocation to the lever *u*, the position of the cam is so adjusted that at the end of its advance movement one projection only has just lifted the roller *x* to its full extent the said roller being again lowered on the return movement and caused to travel on one of the low parts for the remainder of the reciprocation of the said cam.

What I claim as my invention and desire to secure by Letters Patent, is:—

1. In automatic numbering mechanism for printing machines, the combination with a printing mechanism of a cam reciprocated thereby, a lever actuated by said cam, a plurality of numbering barrels and means actuated by said lever for imparting a plurality of movements to such numbering barrels between each impression to cause them to print numbers the desired interval apart, substantially as set forth.

2. In automatic numbering mechanism for printing machines, the combination with a printing mechanism having a reciprocating shaft, of a cam mounted thereon between fixed collars, a plurality of sets of projections on said cam, graduations on said cam

coöperating with a mark on one of the collars, holes in the other collar, a screw in said cam adapted to enter such holes to clamp the cam in an adjusted position, a lever actuated by said cam, a plurality of numbering barrels and means actuated by said lever for imparting a variable number of movements to such numbering barrels between each impression to cause them to print numbers the desired interval apart, substantially as set forth.

3. In automatic numbering mechanism for printing machines, the combination with a printing mechanism of a cam reciprocated thereby, a lever actuated by said cam, a plurality of numbering barrels, a chase to carry the form and in which the numbering barrels are set up, rods adapted to actuate the printing wheels of said numbering barrels, a sliding beam to which such rods are attached, a guide way in said chase for such beam to slide in, a spring to urge said beam in one direction, levers to impart motion thereto in the opposite direction and a sliding part through which such motion is transmitted to said levers from the cam operated lever first mentioned substantially as set forth.

4. In automatic numbering mechanism for printing machines, the combination with a printing mechanism of a cam reciprocated thereby, a lever actuated by said cam, a roller on said lever engaged by said cam, a plurality of numbering barrels, means of actuating the said numbering barrels and an adjusting screw carried by said lever and adapted to transmit motion therefrom to the numbering barrel actuating mechanism, substantially as set forth.

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

JOHN DE BURGH GALWEY.

Witnesses:

MORTIMER MCGEE,

JNO. CORRIGAN.