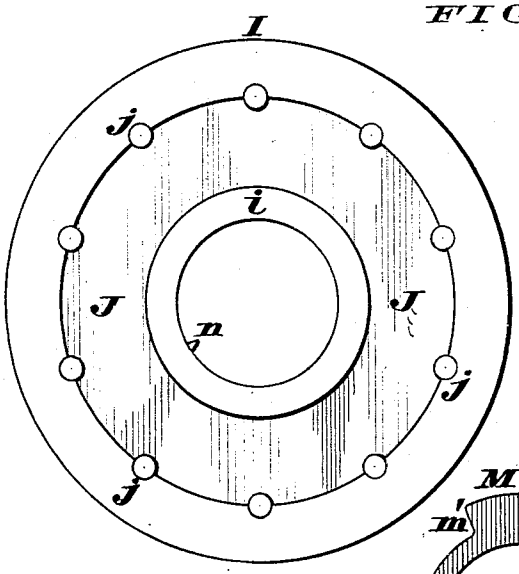
(Model.) 2 Sheets—Sheet 1.

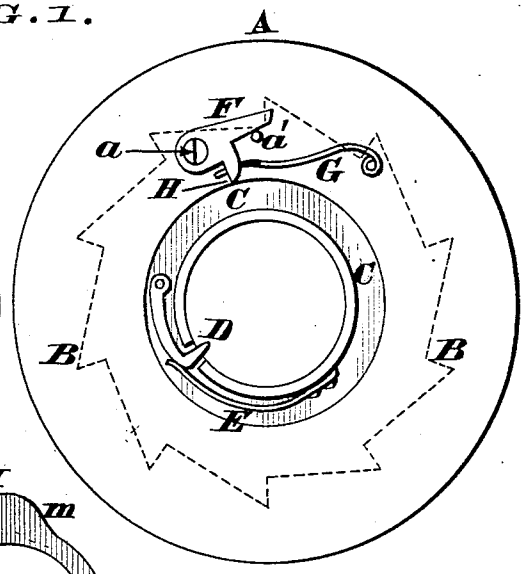
G. LAUTENSCHLAGER.

Numbering or Paging Machine.

No. 232,983. Patented Oct. 5, 1880.

FIG. 1.





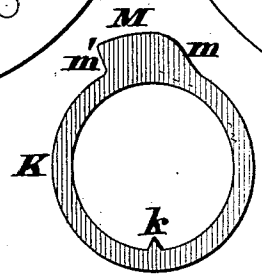
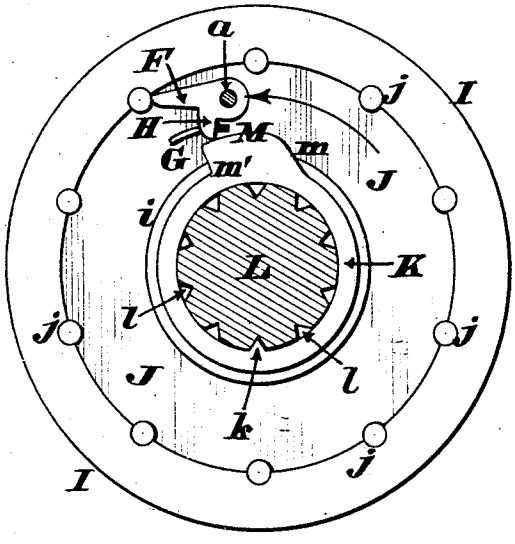


FIG. 3.

FIG. 2.



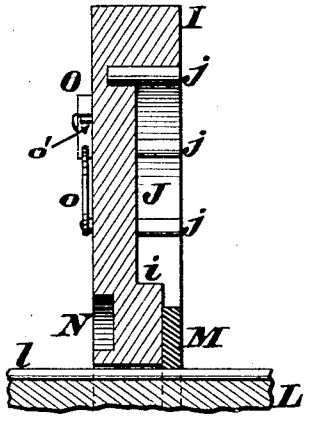
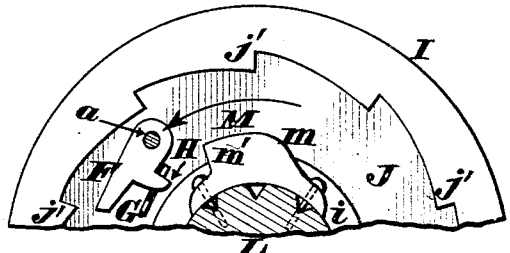


FIG. 4.



Attest,
John W. Layman
F. W. Mudson

Inventor.
Gustavus Lautenschlager
by James N. Layman
his Attorney.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

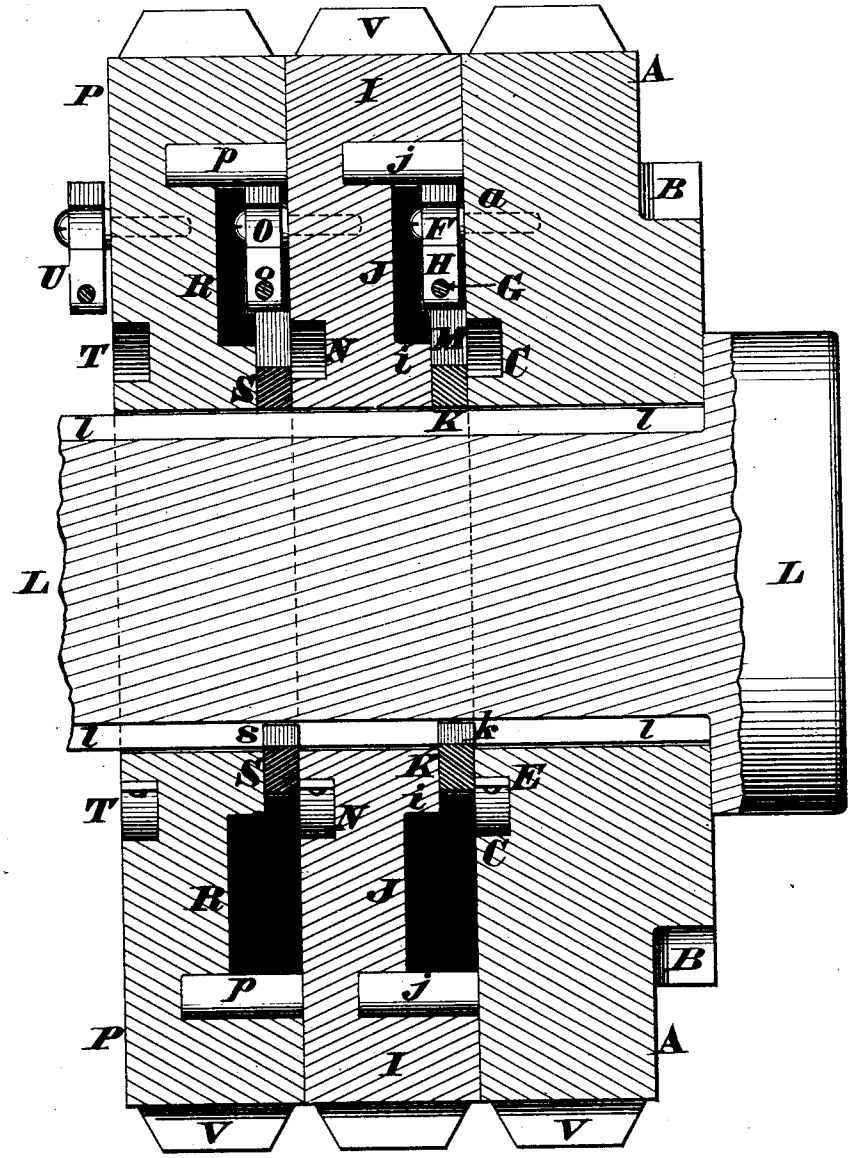
(Model.) 2 Sheets--Sheet 2.

G. LAUTENSCHLAGER.

Numbering or Paging Machine.

No. 232,983. Patented Oct. 5, 1880.

FIG. 5.



Attest.
J. W. Layman.
James C. Devell

Inventor.
Gustavus Lautenschlager
by James H. Layman
his Attorney

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GUSTAVUS LAUTENSCHLAGER, OF CINCINNATI, OHIO

NUMBERING OR PAGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 232,983, dated October 5, 1880.

Application filed March 25, 1880. (Model.)

To all whom it may concern:

Be it known that I, GUSTAVUS LAUTENSCHLAGER, of Cincinnati, Hamilton county, Ohio, have invented certain new and useful Improvements in Numbering or Paging Machines, of which the following is a specification.

My invention comprises a novel construction of internal ratchets, pawls, and cams wherewith the desired feed is imparted from the primary or driving disk of a numbering or paging machine to the second disk, thence to the third, and so on throughout the entire train, the details of said devices being clearly shown in the annexed drawings, in which—

Figure 1 is an elevation, showing one of the interposed cams and the meeting faces of the primary and secondary disks, said members being detached from the supporting shaft or spindle. Fig. 2 is an elevation, showing the secondary disk mounted on the spindle and the pawl of the primary disk engaged with one of the pins of said secondary wheel. Fig. 3 is an enlarged vertical section of the upper portion of this secondary disk, and Fig. 4 is a modification, in which the pawl of the primary disk is represented as released from the ratchet of the secondary wheel. Fig. 5 is a greatly-enlarged vertical section of three of my numbering-wheels, said section being taken longitudinally of the spindle, and showing the pawls so engaged with the appropriate ratchets as to compel the second and third disks to rotate in unison with the first one.

Referring to Fig. 1, A represents the primary or driving disk or roller of a train of wheels such as is generally employed with numbering or paging machines, the exterior of said disk having a ratchet indicated by dotted lines B, which ratchet may be actuated by a suitable feed-hand or other device. The inner or meeting face of this disk has an annular groove, C, to admit a pivoted catch or detent, D, that is forced toward the center of the disk by a spring, E. Furthermore, this face of the disk has pivoted to it, at *a*, a pawl, F, that is normally held against the stop *a'* by means of a spring, G. H is a lateral projection or spur of this pawl.

I is the secondary disk or roller, which disk has an annular race, J, traversed by the pawl F when the disk A is set in motion, the outer circle or wall of this race being provided with pins *j*, as seen in Fig. 1, or with ratchet-teeth *j'*, as indicated in Fig. 4. Disk I has a hub, *i*, against which rests a ring, K, whose tongue *k* may be inserted in either one of the longitudinal grooves *l* of the stationary shaft or spindle L, so as to prevent said ring rotating. This ring has a cam or eccentric, or other equivalent device, M, approached by an inclined plane, *m*, and terminating abruptly at *m'*. The opposite side of disk I has an annular groove, N, to receive a detent, *n*, which is forced inwardly by a suitable spring, said groove, detent, and spring being precisely similar to the devices C D E, previously described. Furthermore, this face of said disk has a pawl, O, similar to the one F, and provided with a spring, *o*, and stop *o'*, said pawl O being adapted to engage with the pins or ratchet-teeth *p* of the third disk, P, which latter has an annular race, R, corresponding with the cavity J of disk I, as seen in Fig. 5.

S is the cam-ring of disk P, and *s* the retaining-tongue of said ring. The opposite face of disk P has an annular groove, T, similar to the ones C N, and for the same purpose.

U is the pivoted pawl for communicating motion from the disk P to the fourth disk, the above-described complement of grooves, races, pins, pawls, and cam-rings being employed throughout the entire train, with the single exception of the last wheel, which, of course, needs no feed-pawl.

V represents the letters, numerals, or other characters of the printing-rollers, which devices may be applied to the peripheries of said rollers in any approved manner.

When the disks and cams are properly mounted on the stationary spindle L the pawl F of driver A occupies the annular race J of disk I, and as this driver A rotates in the direction of the arrow seen in Fig. 2, said pawl F describes a circuit within the race. During a greater portion of this circuit the stress of spring G draws the free end of said pawl toward the shaft L, as seen in Fig. 4; but the instant spur H rides up the incline *m* of cam M said pawl swings on the pivot *a* of disk A, thereby forcing outwardly the point of this pawl and bringing it in contact with one of

the pins *j*, as represented in Fig. 2. Consequently the motion of disk A is now imparted to the one, I, which latter continues to revolve as long as the spur H is in contact with eccentric M; but as soon as said spur passes the termination *m'* of this cam the spring G swings the free end of pawl F toward spindle L, and thus arrests the further rotation of the secondary disk I. At the next revolution of disk A its pawl F engages with another one of the pins *j*, and thus successively until the secondary disk I has been caused to make a complete revolution, when its pawl O imparts motion to the third disk in the train, and the third to the fourth, and so on, with as many wheels as may be desired.

The detents D *n* have sufficient hold in the grooves *l* of the fixed spindle L to prevent either of the disks A or I being accidentally shifted by contact with each other, but at the same time these detents will retract and allow said disks to rotate as soon as a positive feed is effected with the proper pawls.

In the modification shown in Fig. 4 the ring K is dispensed with and the cam M is secured to spindle L with pins or screws; but the arrangement of tongue *k* is preferred, because it allows a very thin ring to be used, and enables said ring to be shifted longitudinally of the shaft, so as to compensate for any play or lost motion of the disks.

The pins *j*, arranged around the outer wall or periphery of the annular race J, are a great advantage peculiar to my machine, as said pins can be inserted more readily than a true internal ratchet can be cut in the limited width of the disk, and, being made of steel, said pins reduce friction at this most vital part of the movement. Similarly, all the pawls and cam-rings can be made of steel.

I am aware it is not new to use cam-rings for the purpose of imparting radial reciprocations to sliding dogs and other clutches so as to couple one numbering-disk to another, as such devices are seen in several patents.

I am also aware it is not new to employ pawls, springs, and ratchets of various kinds for accomplishing this result. Such being the state of the art, my claim is not to be construed as an attempt to cover any and every arrangement of such devices, but is expressly limited to the combination of fixed cams, spurred pawls, retracting-springs, and ratchets herein described and illustrated.

I claim as my invention—

The combination, in a numbering or paging machine, of the stationary spindle L *l*, carrying a fixed cam, M *m m'*, and a pair of disks, A I J, of which the primary A has pivoted to it an internal pawl, F H, adapted to engage with the pins or ratchets *j* of the secondary I J, so as to drive the latter as soon as the spur H of said feed-pawl comes in contact with said fixed cam, a retracting-spring, G, secured to driver A, being employed for disengaging the pawl from the ratchet at the proper moment, as herein described and set forth.

In testimony of which invention I hereunto set my hand.

GUSTAVUS LAUTENSCHLAGER.

Witnesses:
JAMES H. LAYMAN,
L. H. BOND.