

Dec. 26, 1933.

A. W. HARRIES

1,940,669

APPARATUS FOR NUMBERING PAPER SHEETS

Filed Dec. 2, 1932

2 Sheets-Sheet 1

Fig. 1.

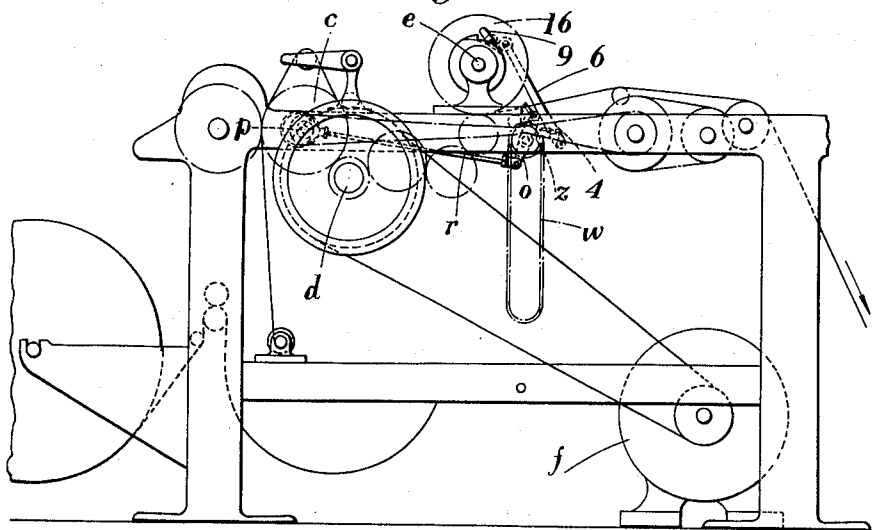
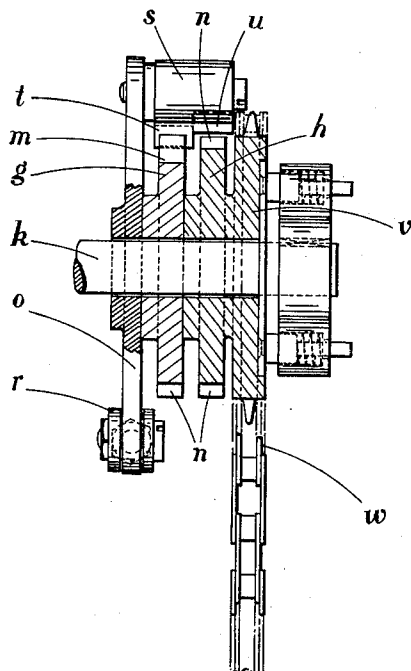


Fig. 4.



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Fig. 2.

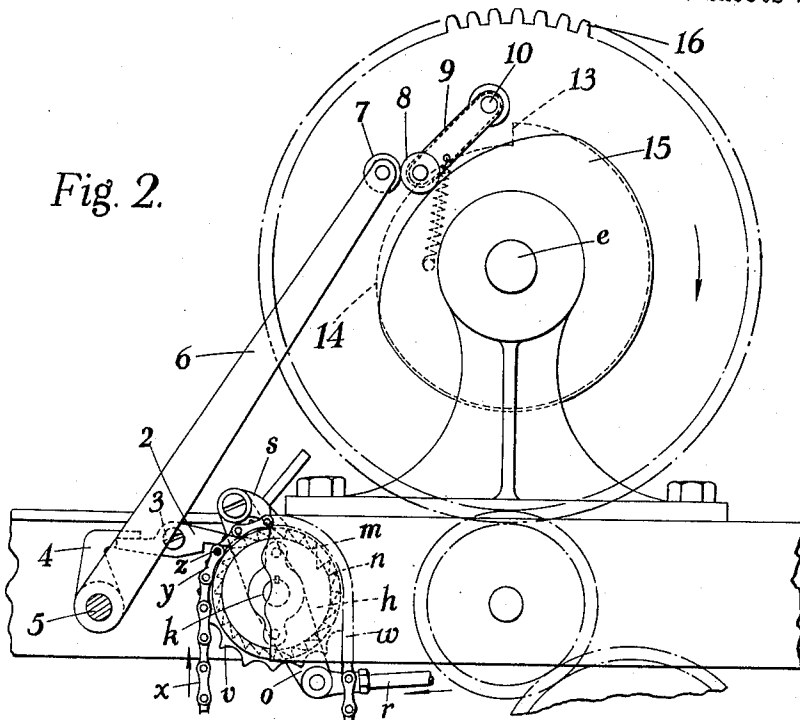
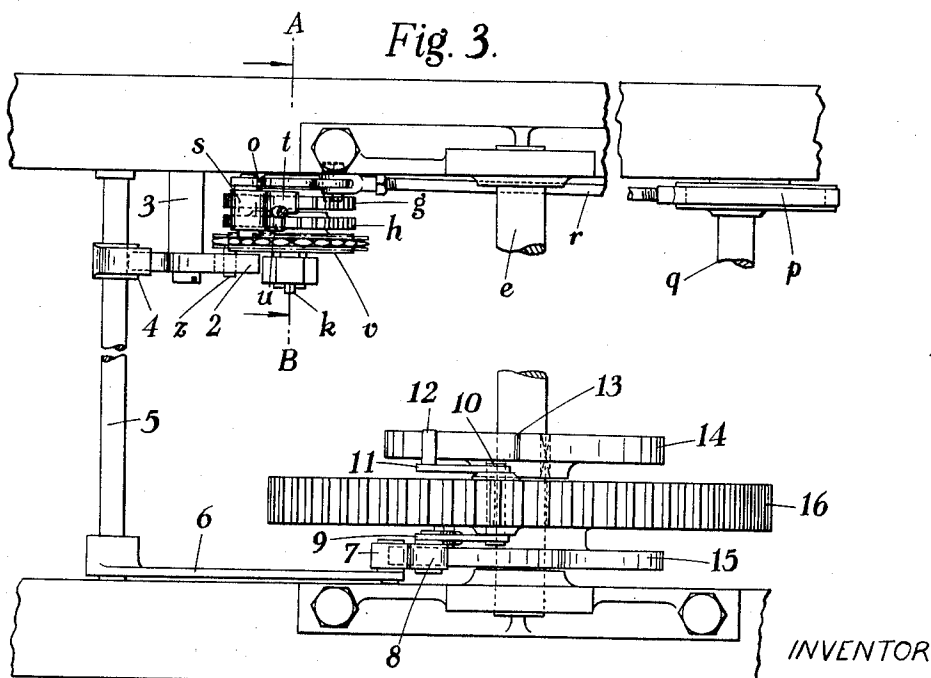


Fig. 3.



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UNITED STATES PATENT OFFICE

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APPARATUS FOR NUMBERING PAPER SHEETS

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Application December 2, 1932, Serial No. 645,490,
and in Great Britain February 1, 1932

3 Claims. (Cl. 101—76)

In connection with machines for printing commercial forms, invoices, manifold sheets and the like it is a common practice to mount on the machine numbering mechanism which imprints successive numbers on the sheets as they are fed in web form thereto from the impression cylinder.

For convenience of making up the web into pads for example, or in such other form as may be required comprising successively numbered sheets, I have found it desirable that the first, or last, few sheets of the pad should not be numbered and according to the present invention means are provided in combination with the numbering mechanism, for throwing the same out of operation when desired so that during the travel of any predetermined number of sheets the numbering mechanism will not function.

In order that the nature of the improvements may be clearly understood I have illustrated the same in the accompanying drawings applied by way of example to a rotary printing machine similar reference characters relating to like parts in all the figures.

Figure 1 is a general view of the machine showing the main parts affected by the invention.

Figure 2 is an elevational view of apparatus according to this invention drawn to a larger scale and

Figure 3 is a plan thereof.

Figure 4 is a sectional elevation on the line A—B Figure 3 drawn to a still larger scale.

Referring first to Figure 1, the impression cylinder is shown at *c*, being driven through the intermediate shaft *d* by the motor *f*, and the main shaft of the numbering mechanism at *e*. The apparatus for carrying out this invention is shown but more particularly and to a larger scale in Figures 2, 3 and 4 and referring now to these figures it will be seen that in proximity to the numbering mechanism, but on the opposite side of the printing machine to that on which the operating means therefor is mounted, ratchet wheels *g* and *h* disposed side by side, are loosely mounted on a shaft *k*, the space *m* between two of the teeth of the wheel *g*, being deeper than the spaces *n* between the other teeth of both the wheels *g* and *h*.

Carried on an arm *o* loosely mounted on the shaft *k* and driven by the eccentric *p* on the impression cylinder shaft *q* and the connecting rod *r* so as to rotate the ratchet wheels *g* and *h* is a double-nosed pawl *s*. It will be clear that when the longer nose *t* of the pawl *s* engages the recesses *n* of the wheel *g* this wheel will be rotated idly on the shaft *k*. When however the longer nose *t*

enters the deep recess *m* of the wheel *g* the short nose *u* of the pawl will engage the recess *n* of the wheel *h* and this wheel will also consequently be rotated and thereby rotate the sprocket pinion *v* connected to or integral with it.

An endless chain *w* passing around the pinion *v* and hanging down freely is formed of a number of links *x* corresponding to a multiple of the number of sheets to be numbered and formed into a pad, and an additional link *y* that carries a pin *z* which in the course of the travel of the chain *w* strikes and thereby trips the detent 2 pivotally mounted on the pin 3.

The detent 2 engages the end of a lever 4 mounted on the shaft 5 that extends transversely of the machine and carries at its other end a lever 6 with a roller 7 on its extremity that normally contacts with the roller 8 that is carried by the bar 9 connected by the pin 10 to a corresponding bar 11 carrying a pin 12 that normally bears against the step 13 in the cam 14 on the shaft *e* to drive the numbering mechanism. The cam 15 and the spur wheel 16 are loose on the shaft *e* and they rotate together in the direction of the arrow when the wheel 16 is driven by intermediate gearing from the shaft *d*.

When the detent 2 is tripped the lever 4 swings forwardly and the corresponding movement imparted to the shaft 5 will bring the roller 7 on the lever 6 into direct contact with the cam 15.

The roller 7 following the periphery of the cam 15 will raise the bar 9 thus also raising the bar 11 so that the pin 12 misses the step 13 in the numbering cam 14 and the numbering mechanism is therefore thrown out of operation and remains idle until the travel of link *y* and pin *z* beyond the detent 2 allows this member to return to its normal position into engagement with the lever 4 and the lever 6 is swung back to its former position so that the numbering cam is operated and the numbering of the sheets proceeds in the usual manner.

What I claim is:—

1. In combination, an impression device, a numbering mechanism, a sprocket wheel operated by said impression device, an endless chain driven by said sprocket wheel and having a number of links corresponding to the number of sheets to be numbered and having an additional link, a pin carried by said additional link, and a trip mechanism operated by said pin for throwing said numbering mechanism out of action.

2. An apparatus for periodically throwing a numbering mechanism out of operation comprising a driven sprocket wheel, an endless chain

driven by said sprocket wheel and having a number of links corresponding to the number of sheets to be numbered and having an additional link, a pin carried by said additional link, a pivoted detent in the path of travel of said pin, a lever engaged by said detent and rocked thereby when the pin moves said detent, a shaft to which said lever is fixed, a second lever fixed to said shaft, a cam adapted to operate said numbering mechanism and having a step thereon, a pin normally engaging said step, a rotating lever system carrying said pin and into the path of travel of which the free end of said second lever is adapted to be disposed when the first lever is rocked whereby the pin is moved out of engagement with the cam and the numbering mechanism ceases to operate.

3. In combination, an impression device, a

numbering mechanism, a pair of ratchet wheels disposed side by side, the space between two of the teeth of one ratchet wheel being deeper than the spaces between the other teeth of both ratchet wheels, a pawl having a long nose cooperating with the ratchet wheel having the deep space and having a short nose cooperating with the other ratchet wheel, an arm carrying said pawl, an eccentric for driving said arm, a sprocket wheel driven by the ratchet wheel having the shallow spaces, an endless chain driven by said sprocket wheel and having a number of links corresponding to the number of sheets to be numbered and having an additional link, a pin carried by said additional link, and a trip mechanism operated by said pin for throwing said numbering mechanism out of action.

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20	95
25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150