(No Model.)

H. SCHOTT.

PRINTING MACHINE.

No. 300,141. Patented June 10, 1884.

Fig. 1.

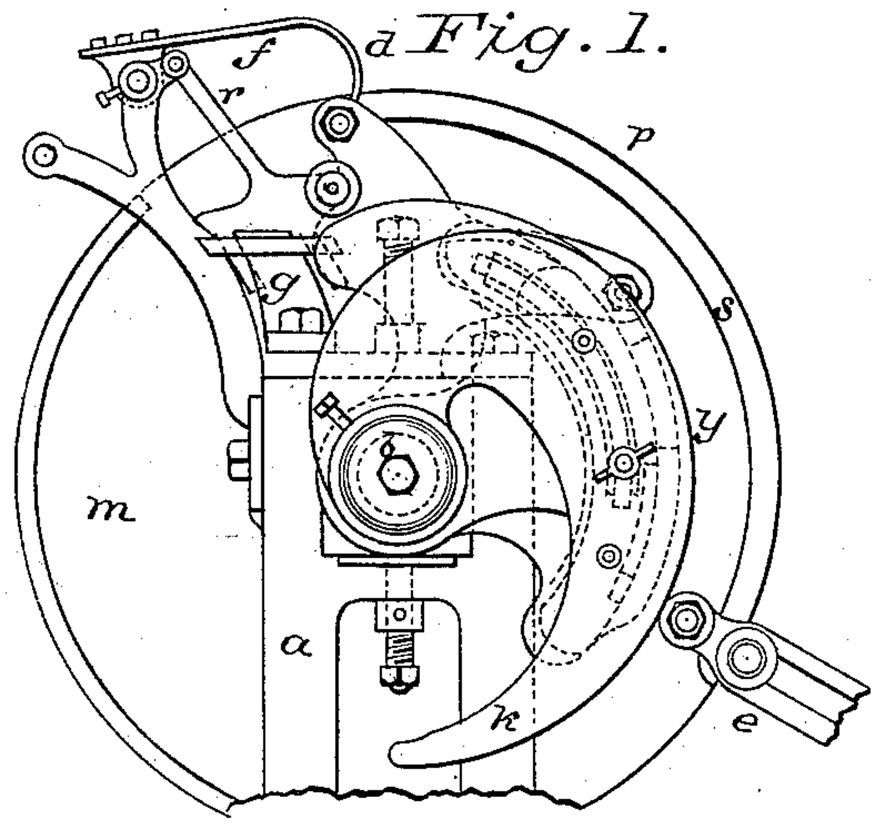


Fig. 2.

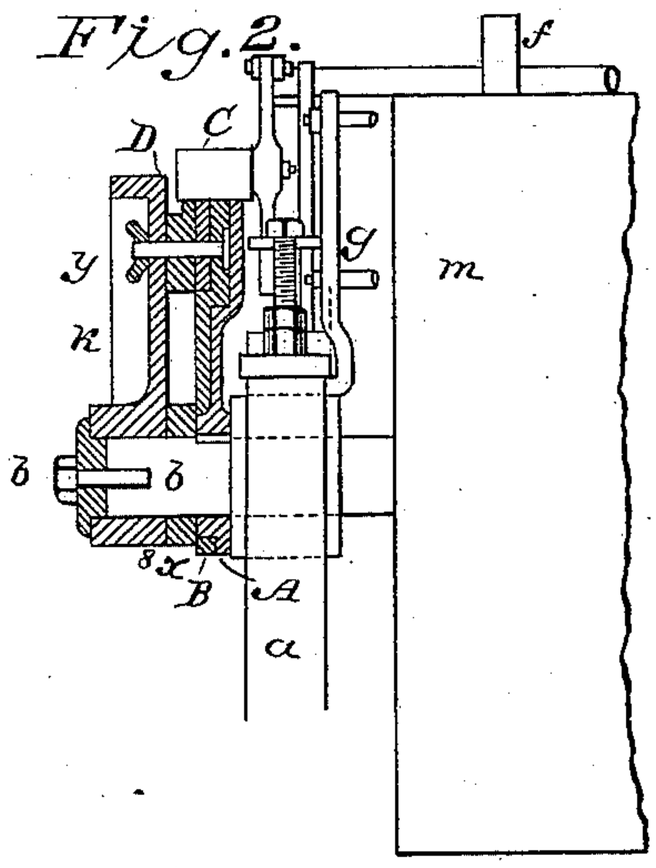


Fig. 3.

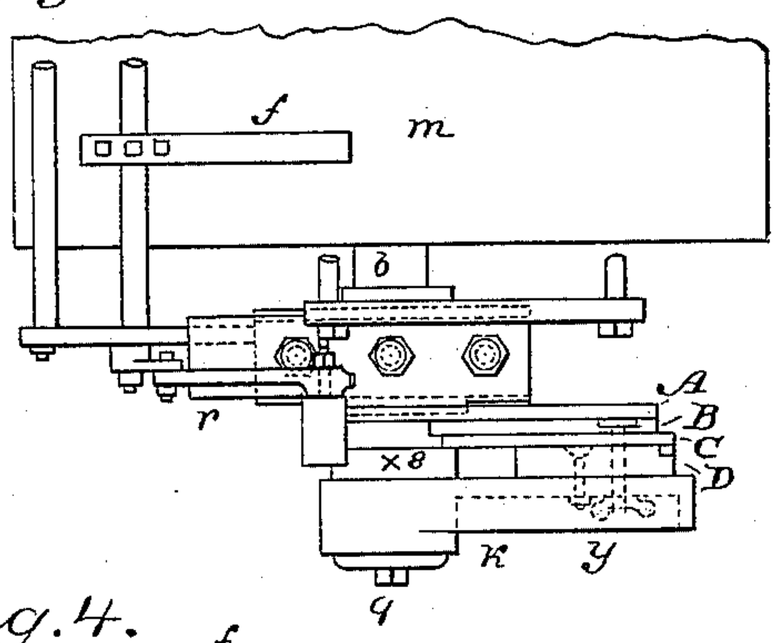


Fig. 4.

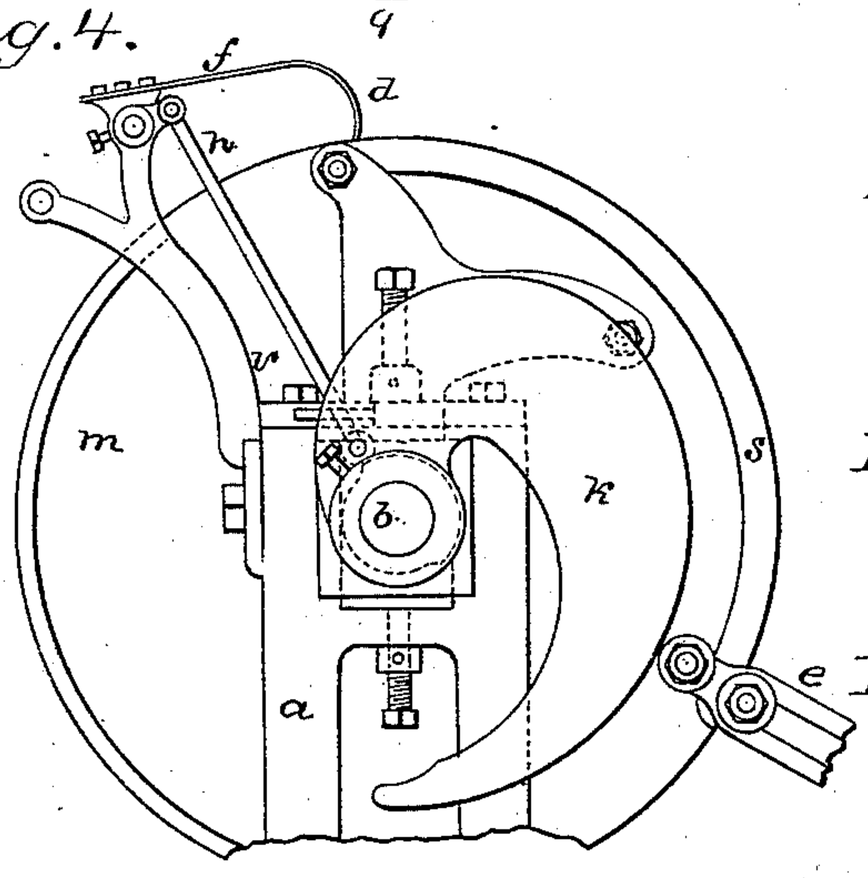


Fig. 5.

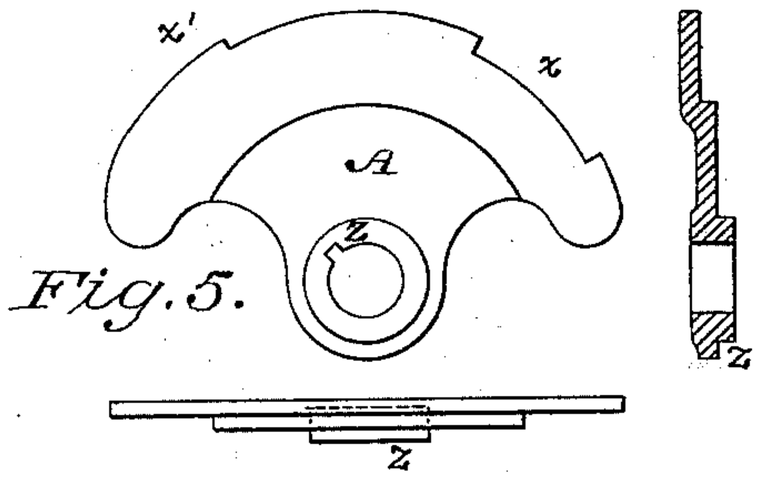


Fig. 6.

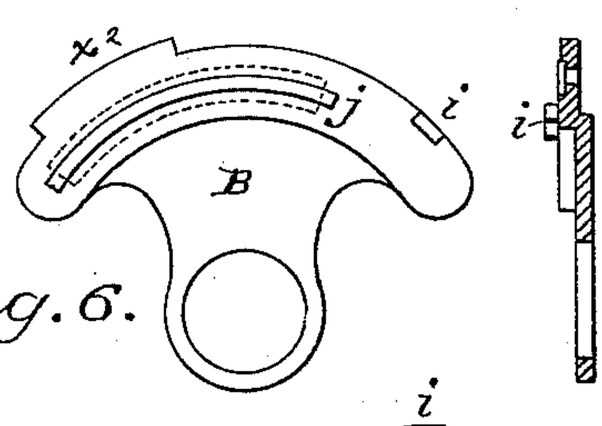


Fig. 7.

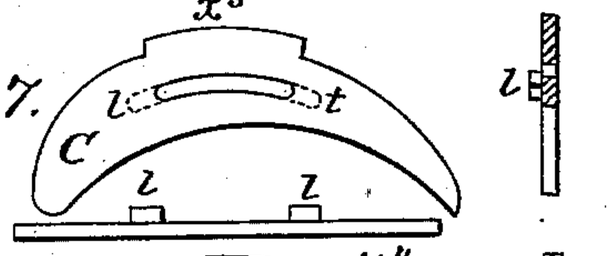
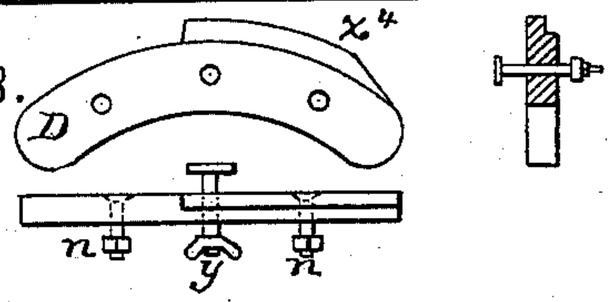


Fig. 8.



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UNITED STATES PATENT OFFICE.

HENRY SCHOTT, OF RICHMOND, VIRGINIA, ASSIGNOR OF ONE-HALF TO WILLIAM L. ROYALL, OF NEW YORK, N. Y.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 300,141, dated June 10, 1884.

Application filed December 6, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY SCHOTT, residing at Richmond, in the county of Henrico and State of Virginia, a citizen of the United States, have invented a new and useful Improvement in Printing-Machines, of which the following is a specification.

My invention relates to improvements in printing-presses where the sheets to be printed are supplied by hand, (by a feeder or feeders in the usual manner,) and on which presses the fly-cam requires adjustment to suit the sheet-piling of, respectively, the varying sizes of paper to be printed. On a cylinder printing-press the impression-segment of the cylinder corresponds to the full size of the bed of the press, and the feed-guides are elevated at front edge of the impression-segment and are lowered when rear edge of impression-segment has passed under said feed-guides. In order to adjust the fly-cam it has been necessary to run through the press a sheet to be printed, stopping the press at exact point when the rear edge of sheet is barely held between the tapes and tape-pulleys.

The objects of my improvements are, first, to save time in "making ready" and to effect accurate sheet-piling by providing a quicker, easier, and more accurate method of adjusting fly-cam; second, to effect adjustment of the feed-regulating devices by the adjustment of the fly-cam. I attain these objects by providing an extensible cam consisting of several segments, (in the present instance of four,) which may be contracted or extended at will to operate feed-guides to suit the various sizes of paper to be printed, and other mechanism illustrated in the accompanying drawings, in which—

Figures 1, 2, and 3 represent part of press with improvement attached. Fig. 1 is a side view with extensible cam extended; Fig. 2, a cross-section with the extensible cam contracted; and Fig. 3, a top view. Fig. 4 is a side view of part of the old press without the improvement. Figs. 5, 6, 7, and 8 represent the main portion of the improvement—viz., the four segments of the extensible cam detached from the machine. Fig. 5 is a side view, cross-section, and top view of segment A. Fig. 6 is a side view, cross-section, and top view of segment B. Fig. 7 is a side view, cross-section, and top view of segment C. Fig. 8 is a side view, cross-section, and top view of segment D.

Similar letters refer to similar parts throughout the several views.

In Fig. 4 the side frame, *a*, cylinder *m*, fly-cam *k*, and guide-rod *h* constitute so much of the old machine as is necessary to show the connection of the improvement therewith. Segment A, Fig. 5, with inclined plane for elevating feed-guides *f*, is keyed to cylinder-shaft *b*, Fig. 2, and is provided at its periphery with a curved recess, *x*, to receive and control motion of stop *i*, which is rigidly attached to segment B, Fig. 6. Segment B, Fig. 6, turns on collar *z* of segment A, and is controlled during adjustment by fixed stop *i*, moving in curved recess of segment A, previously referred to. This segment B is provided with a curved slot, *j*, to receive and control motion of the two stops *l l*, which are rigidly attached to segment C, Fig. 7, and also with a curved rabbeted slot, (shown in dotted lines and in the cross-section in full lines,) to receive the sunken head of thumb-screw *y*, endwise displacement of said thumb-screw *y* being prevented by segment A, Fig. 2. Segment C, Fig. 7, is provided with two fixed stops, *l l*, moving during adjustment in curved slot *j* of segment B, Fig. 6. This segment C is also provided with a curved slot, *t*, through which is passed thumb-screw *y*, controlling motion of segment D, Fig. 8, and having its bearing in segment D and fly-cam *k*. Segment D, Fig. 8, with inclined plane for lowering feed-guides *f*, is attached to fly-cam *k* by bolts *n n*. The openings in fly-cam, through which these bolts are passed, may be so slotted as to admit of the most accurate adjustment of the segment D on the fly-cam. The four segments overlap each other, and of course present, during any contraction or extension of the cam, a smooth surface. The guide-arm *r*, Fig. 1, with friction-roller moving upon periphery of extensible cam, has sufficient bearing to insure smooth and regular motion. The lower end or "fork" of said guide-arm *r* moves in guide-piece *g*, the top plate of which is slotted at either end

to receive the two prongs of said fork, Figs. 1 and 2, and said guide-piece *g* is secured to top of cap for cylinder-bearing by bolt *v* of the old machine. (See Fig. 4.) A washer, x^8, Figs. 2 and 3, is placed on cylinder-shaft *b*, between segments A B and fly-cam *k*, Fig. 2, and cap 9 is firmly bolted to cylinder-shaft, Figs. 2 and 3, holding the parts in place, and so fitted as to permit free movement of segment B and fly-cam *k* during adjustment. The several segments when arranged upon the shaft *b*, as illustrated in Figs. 1 and 2, may be drawn out or extended so that their several cam-surfaces x', x^2, x^3, and x^4 may be drawn out in line, so as to form one long continuous edge, or the segments may be adjusted so as to bring their cam-surfaces side by side or overlapping, and thus shorten the cam-surface. The operation of this adjustment is as follows: The segment A is keyed to the shaft *b*, and is therefore stationary relatively thereto. The movement of the segment B upon the segment A is regulated by the stud *i*, which works in the curved recess *x* in the edge of the segment A. As shown in the drawings, when the stud *i* is against the right-hand shoulder or end of the recess *x*, the cam-surface x^2 of the segment B forms a continuation of the surface x' of the segment A. In like manner the segment C moves upon the segment B, its relation thereto being controlled by the studs *l*, which work in the curved slot *j* in the segment B. The segment D in like manner slides upon the segment C, its relation thereto being controlled by the thumb-bolt *y*, which slides in the curved slot *t*. The segment D being rigidly secured to the fly-cam the adjustment of the fly-cam will either operate to draw the segments out or contract them, and thus either increase or decrease the cam-surface x' x^2 x^3 x^4. By screwing up the thumb-bolt *y* the segments B, C, and D, when adjusted, may be firmly clamped together, so as to prevent their displacement. The segment A being fast upon the shaft *b*, and the segment D rigidly secured to the fly-cam, the parts will now be held firmly.

Figs. 5, 6, 7, and 8, guide-arm *r* with friction-roller, guide-piece *g*, washer x^8, and cap 9 are the parts organized as above described to carry out my invention. Side frame, *a*, cylinder *m*, cylinder-shaft *b*, fly-cam *k*, guide-rod *h*, and feed-guides *f* are parts of the old machine. The impression-segment *s* of cylinder extends from *d* to *e*, and when extensible cam is contracted, feed-guides *f* lower at *p*, Fig. 1, consequently on small work admitting of entire contraction of cam, the distance or time from *p* to *e* being twenty-six hundredths of circumference of cylinder, is gained for the feeder, and proportionately so according to the size of the sheet printed, the cam being capable of adjustment at any desired point from *p* to *e*, so that feed-guides *f* may lower immediately after the rear edge of sheet has passed under them.

The feature of my invention is that the extensible cam is automatically adjusted by the adjustment of the fly-cam. The fly-cam *k* requires adjustment on all presses for all sizes of work, and in my improvement, segment D of extensible cam being rigidly attached to fly-cam *k*, adjusting the fly, also adjusts the cam, or vice versa.

As previously referred to, in order to adjust the fly-cam on the old press it was necessary to feed a sheet down to the guides *f* and cause the press to make one revolution, stopping exactly at a point where the rear edge of the sheet is barely held between the tapes and tape-pulleys, then fly-cam is adjusted so that the fly will be released at exactly the same point, a proceeding which must often be repeated even by experienced pressmen before accurate sheet-piling is accomplished. Now, by my invention it is only necessary to feed a sheet down to the guides *f*, to turn the press until the rear edge of sheet has passed, say, one-half inch beyond said guides, and, as explained, the adjustment of extensible cam and fly-cam being coincident, to turn fly-cam *k* until feed-guides *f* rest upon the tongues of feed-board, tighten bolt on fly-cam and thumb-screw *y*, throw press into gear, and the sheet will be accurately delivered to the fly. Segment D being attached at correct point from releasing-point of fly-cam and the extensible cam, in conjunction with feed-guides *f*, acting as a true index to fly-setting, the most accurate adjustment of fly is assured.

It will be obvious that the extensible cam may be attached in rectilinear form to the reciprocating part of the press, as well as in the manner described.

I am aware that, broadly, an extensible or adjustable cam is old, and I therefore make no claim to any such broad subject-matter.

I claim as my invention—

1. The combination of the sectional adjustably-extensible cam, the feed-guides operated thereby, and the fly-cam, the end segment of the sectional-adjustable cam being secured to the fly-cam, substantially as and for the purpose set forth.

2. The combination of the feed-guides, adjustable mechanism, substantially such as described, for operating said guides, the fly-cam, and means, substantially such as described, whereby the fly-cam and said adjustable mechanism may be simultaneously adjusted according to the size of the sheet being printed.

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Witnesses:
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