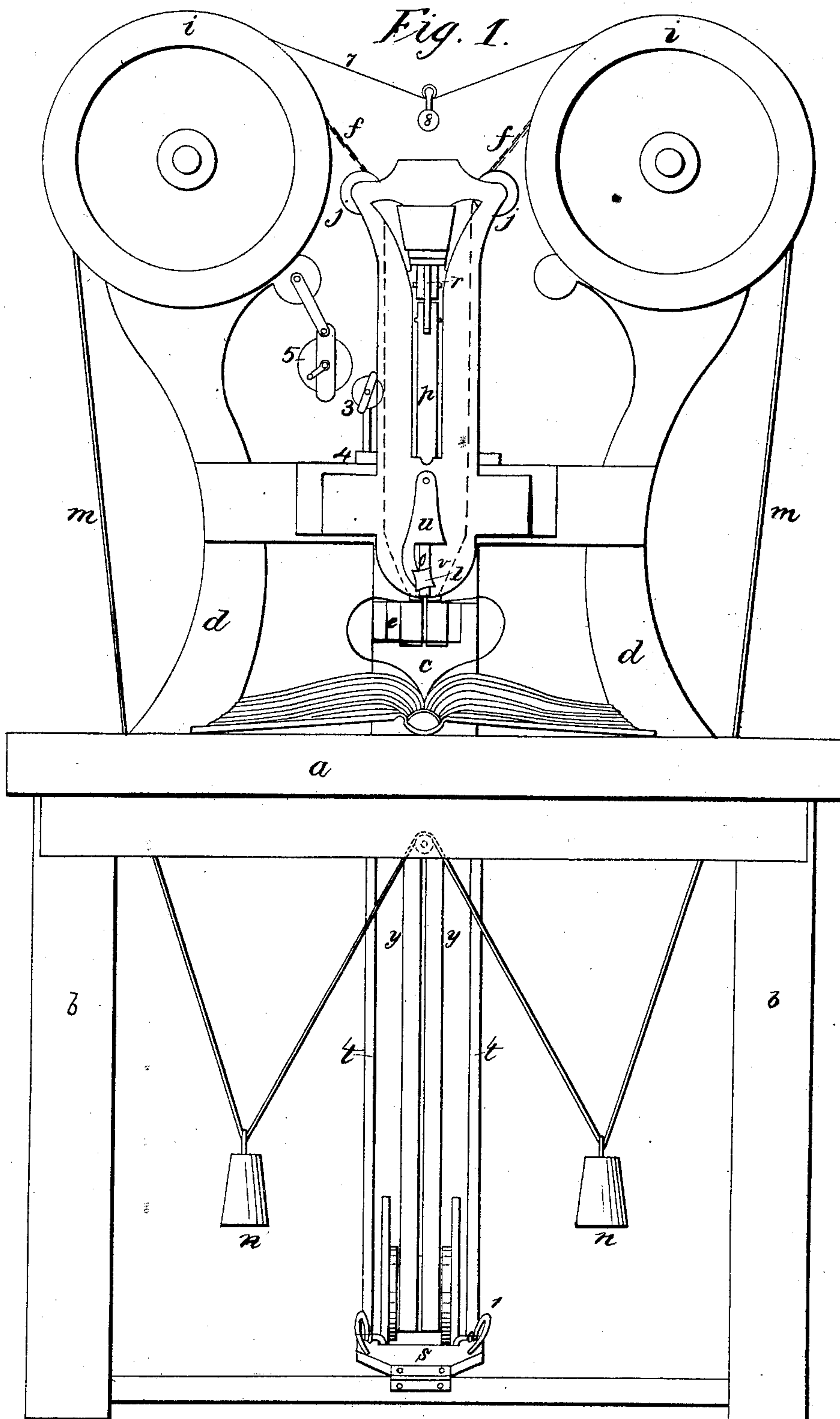


*G. Hodgkinson. Sheet 1. 2 Sheets*  
*Paging Mach.*

*N<sup>o</sup> 11936.*

*Patented Nov. 14. 1854.*

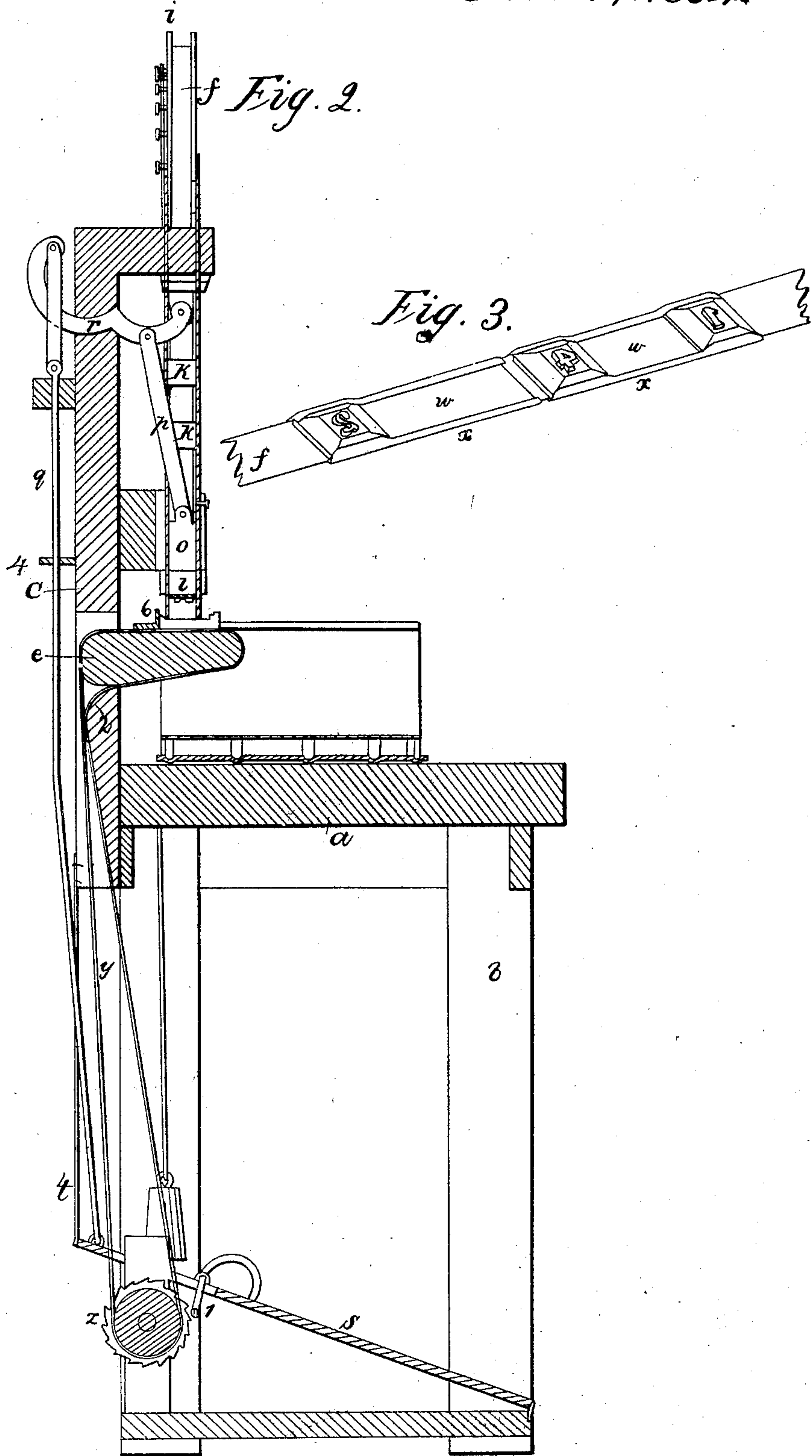
*Fig. 1.*



G. Hodgkinson. *Sheet 2. 2 Sheets.*  
*Paging Mach.*

N<sup>o</sup> 11936.

Patented Nov. 14. 1854.





# UNITED STATES PATENT OFFICE.

GEORGE HODGKINSON, OF CINCINNATI, OHIO.

## PAGING-MACHINE.

Specification of Letters Patent No. 11,936, dated November 14, 1854.

*To all whom it may concern:*

Be it known that I, GEORGE HODGKINSON, of Cincinnati, Hamilton county, Ohio, have invented new and useful Improvements in  
5 Machines for Paging Bound Books; and I do hereby declare the following to be a full, true, and exact description thereof, reference being had to the annexed drawing, making part of this specification.

10 My invention has especial reference to the following points of utility: quickness and facility of operation; avoidance of blurring or slurring; avoidance of injury to the book by twisting or otherwise distorting the back  
15 in the act of paging; protection and easy renewal of the type.

In the annexed drawings, my machine is represented by Figure 1, front elevation; Fig. 2, transverse section; Fig. 3, represents  
20 the type and type bearer drawn to full size.

(a) is the table, upon which the book is laid for operation. This table is supported at the desired height from the floor by a frame (b). To this table and framing are  
25 attached a number of posts (c d) which support that portion of the machinery which is above the table.

Firmly attached to and projecting forward rectangularly from the post (c) is a  
30 platen (e) which has sufficient width given to it, to enable it to serve for both sets of type, the said type and platen being so arranged as to act at each stroke upon the further pages of two consecutive leaves of  
35 a book laid unfolded or open upon the table beneath the platen.

(f) (w) (x) is the type bearer, consisting principally of a long piece of stout tape (f) the opposite extremities of which are  
40 wound around wheels (i) styled by me the taking up wheels. These wheels are journaled to the tops of the posts (d d). That portion of the tape (f) which intervenes between the wheels (i), is looped downward  
45 around a series of friction pulleys (j k); the lowermost portion of the loop being occupied by the square shaft (l), of diameter corresponding to a single solid section of the type, and consisting in each instance of the  
50 odd number in its consecutive order, coupled with the even number next but one in advance of it.

Winding around the take up wheels (i), in the opposite direction to the type bearer,  
55 is a cord (m), which passing through an eye, or over a friction wheel beneath the

table, depends in two loops to each one of which is suspended a weight (n, n). This cord winds onto the left hand wheel and off of the other, and vice versa, as the tape  
60 moves in the opposite direction. The office of the cord (m) is to maintain a tension upon the tape, and take up all the slack as it moves forward. This tension of the tape causes the square shaft (l) to press  
65 upward against the foot of the piston (o). The upper, or inactive position of this piston and shaft is shown in Fig. 2, and their lower or acting position in Fig. 1. The piston connects by rods (p q) and lever (r), with  
70 a treadle (s) worked by the foot of the operator.

A spring (india rubber) (t) may be applied to assist in returning the shaft and piston to the uppermost position, upon the  
75 release of the treadle. At each ascent of the square shaft, it is compelled to make a quarter revolution, by a trigger (u) engaging in succession each of the four spurs (v) upon the shaft, and this rotation of the  
80 shaft, brings a new set of digits into play for every fresh descent of the pistons.

The mode of attachment of the type to the tape, although of the simplest kind is remarkably efficacious, and is more easy both  
85 to work and to keep in order than any other plan of type belt known to me. The types are formed by the electrotype process, in distinct blocks of the shape represented, and a small intervening blank (w) being slipped  
90 in to set them the proper distance asunder, they are clamped to their places on the tape or bearer, by means of the sheaths (x) formed as represented, of thin brass sheeting; a few  
95 taps with a hammer then completes the fastening. The sheaths (x) are formed out of rectangular strips of thin brass sheeting, the strips being in length equal to the combined widths of two type blocks and the desired interval between them, and being in  
100 width sufficient to overlay the rear side of the tape and lap sufficiently around its edges to afford material for clamping as above explained.

A faulty type may be readily removed by  
105 means of a pocket-knife or other bladed instrument and another substituted by the mode above described in the space of a few minutes.

(y) is a taking off band to prevent blur-  
110 ring, by presenting always a dry surface to the just printed page, and is worked slowly



along at every ascent of the treadle, a distance a little greater than the height of the numbers. This movement is effected by a ratchet (*z*), attached to the same roller  
 5 around which the lower portion of the band is stretched, and rotated by a pin (1) on the treadle. A straining block (2), holds the band tightly around the platen which is rounded off see Fig. (2) to facilitate the  
 10 slipping of the band. The inking roller (3) being connected by arm (4) to the rod (*q*) blacks the type at every ascent and descent of the treadle.

(5) is a distributing roller.

15 (6) is an adjustable gage or "register" to aid the operator in placing the leaves.

(7) is a tape which—wrapping around between the layers of type on each barrel—preserves the type from injury.

20 (8) is a weight which, resting in the loop of the tape maintains its proper tension.

This arrangement is preferable to those which require the book to be laid on its side, because the stress and drag upon the  
 25 leaves by the latter modes are apt to strain and bend the back of the book out of shape, besides being a much more difficult and more tardy process as respects its manipulation. With my plan the book lays in the same open  
 30 position during the entire operation, and a single leaf being taken charge of by each hand, the manipulation is a very easy one, with very much less liability to skipping a leaf, a serious error occasionally committed  
 35 by even experienced operators in those machines in which two leaves at once are operated by the fingers of one hand. Another advantage of my machine is in the avoidance of blurring, the paper being in no in-  
 40 stance laid upon the type, and the latter lifting for some distance square off, after making each impression.

I am aware that a continuous band or tape has been for some time used in Europe in apparatus for numbering railroad tickets; 45 and that more recently, the application of a chain type bearer, for the purpose of paging books, has been made the subject of Letters Patent of the United States. I therefore disclaim the invention of a belt or chain 50 in this connection; but

I claim as new herein and of my invention—

1. The construction and combination substantially as described of the pair of taking 55 up wheels, weighted double acting tension cord, and type bearer *f*, *w*, *x*, in combination with the square shaft *l* and trigger *u* and actuating piston *o* or equivalent devices, for the proper tension and delivery of 60 the type bearer *f*, *w*, *x*, during the alternate advancement and impression of the type.

2. The series of type blocks constructed and arranged as described and consisting 65 each in succession of the consecutive odd number, coupled with the even number, three units higher in the scale; in combination with an extended platen *e* and its accessories *6*, *y*, *z*, *1*, or equivalent devices substantially as described; so as to act at each 70 stroke upon the further pages of two consecutive leaves of an unfolded or open book.

3. The mode herein described and represented of clamping the type blocks to the 75 band by means of a sheet metal sheath *x*, inclosing the rear side and edges of the tape and type blocks.

In testimony whereof, I hereunto set my hand before two subscribing witnesses.

GEO. HODGKINSON.

Witnesses:

GEO. H. KNIGHT,  
 J. L. SCOTT.