(No Model.) 3 Sheets—Sheet 1.

H. P. FEISTER.

PRINTING MACHINE.

No. 267,171. Patented Nov. 7, 1882.

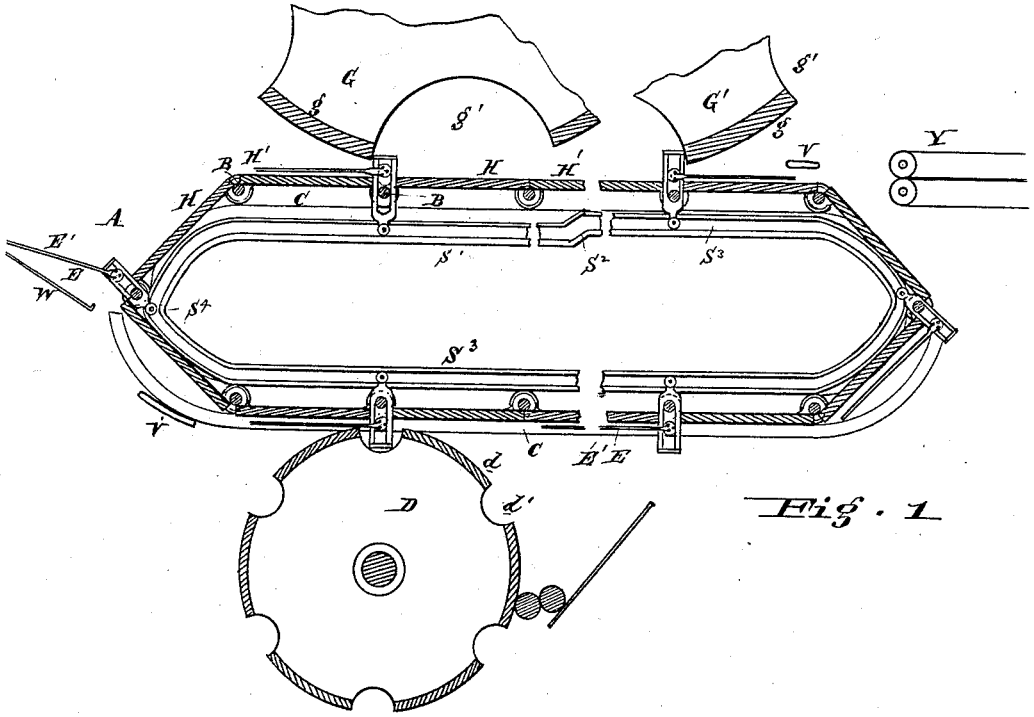

Fig. 1

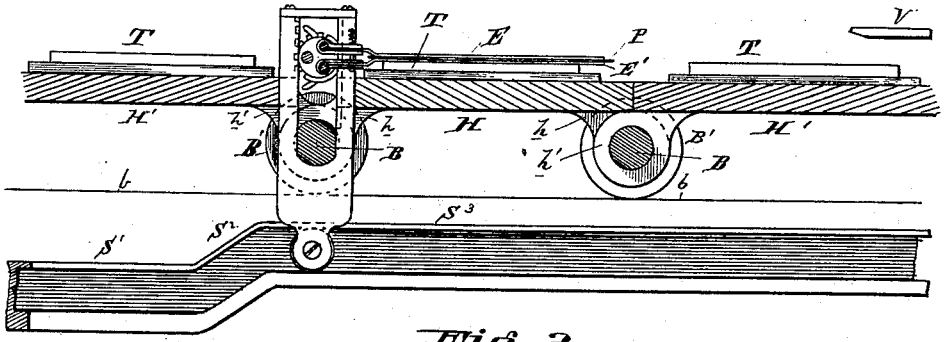

Fig. 2

Attests
Wesley Williams
Isaac Fine

Inventor
Henry P. Feister

(No Model.) 3 Sheets--Sheet 2.

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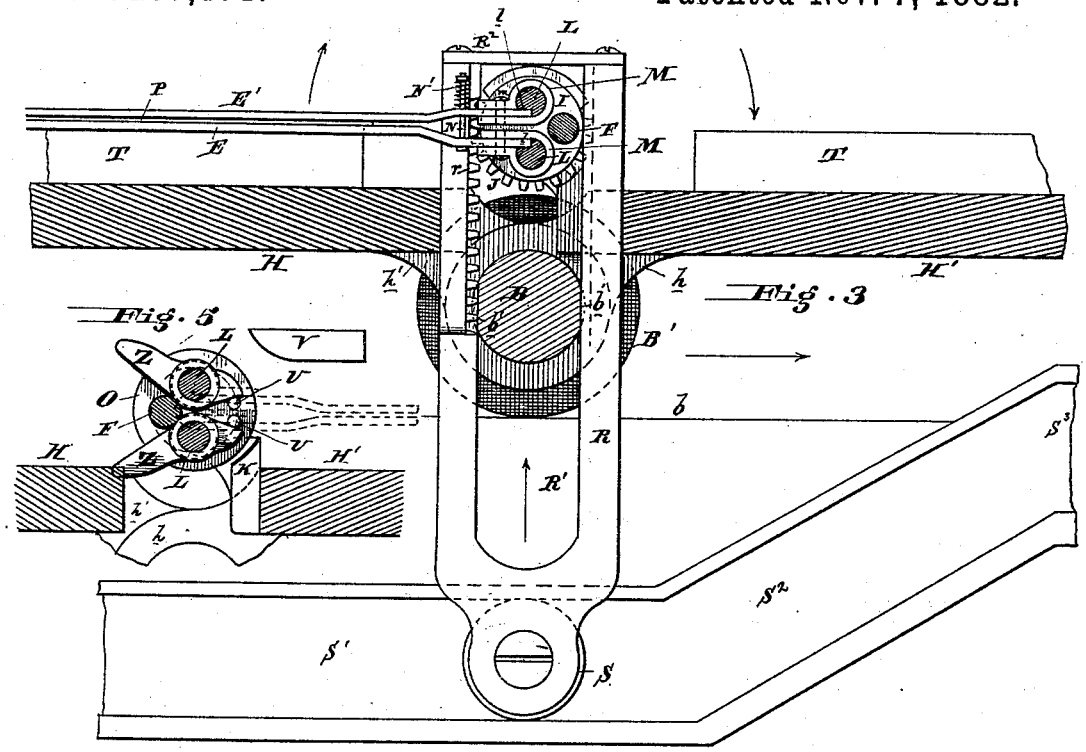


Fig. 3

Fig. 5

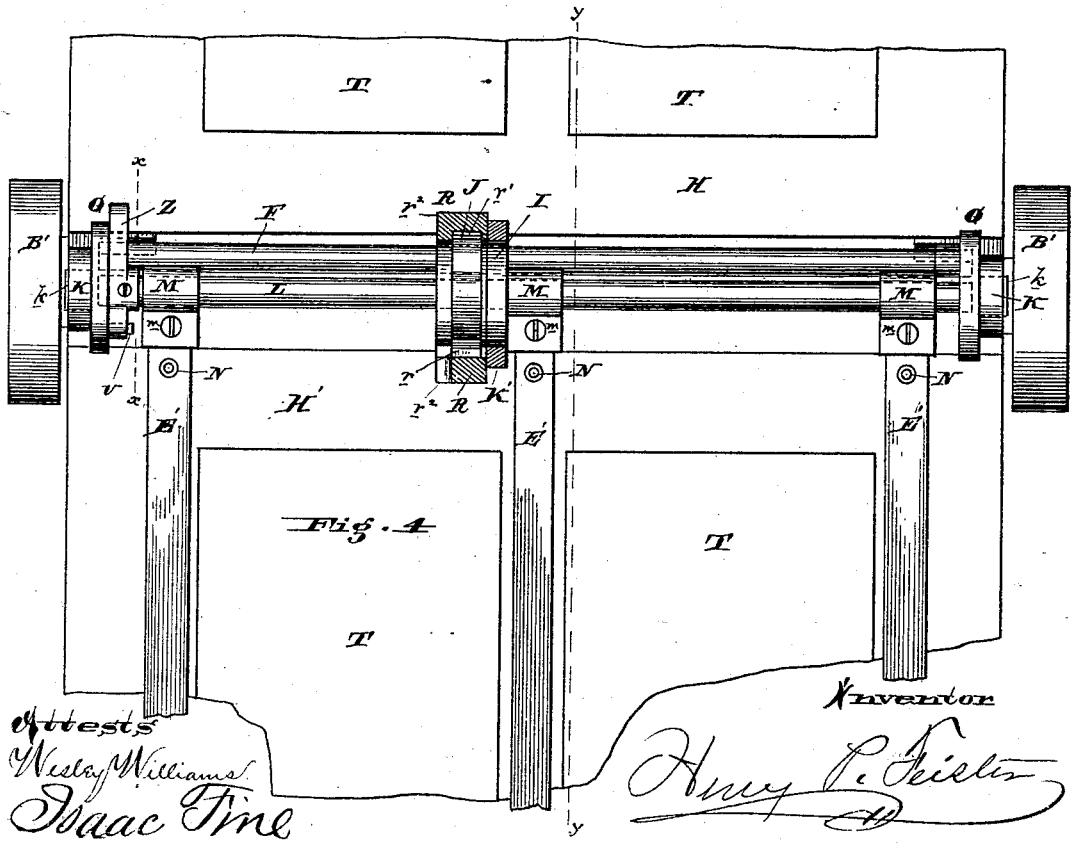


Fig. 4

Attests:
Wesley Williams
Isaac Fine

Inventor
Henry P. Feister

(No Model.)

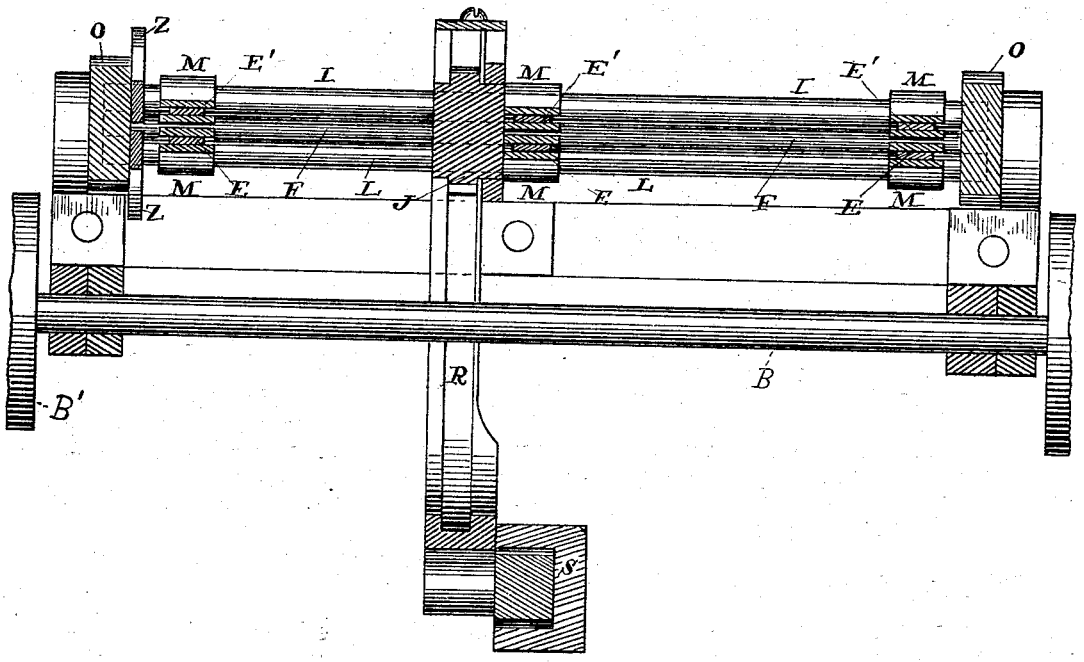
3 Sheets—Sheet 3.

H. P. FEISTER.

PRINTING MACHINE.

No. 267,171. Patented Nov. 7, 1882.

Fig. 6.



Attests.

M. R. Feister.

C. C. Lear.

Inventor.

Henry P. Feister.

UNITED STATES PATENT OFFICE.

HENRY P. FEISTER, OF PHILADELPHIA, PA., ASSIGNOR OF TWO-THIRDS TO ISAAC FINE AND ISAAC S. SHARP, BOTH OF SAME PLACE.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 267,171, dated November 7, 1882.

Application filed May 4, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY P. FEISTER, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Printing-Machines, of which the following is a specification, reference being had to the accompanying drawings, which form part thereof.

My invention has reference to printing-machines adapted to print upon both sides of sheets and bind them into books, as shown in patent granted to me April 18, 1882, No. 256,662, but more particularly to the nippers by which the sheets are reversed; and it consists in mechanism by which said nippers are actuated to receive the sheet, and after it has been printed upon one side thereof reverse the same, and after it has been printed upon the other side to separate said nippers to discharge the sheet; and, further, in combining said mechanism with an endless chain of type-carriages and auxiliary mechanism, and in details of construction, all of which are fully set forth hereinafter.

In the drawings, Figure 1 is a sectional elevation, representing a chain of type-carriages and auxiliary mechanism, and having my improved nippers applied thereto. Fig. 2 is a sectional view or elevation of a portion of the chain of type-carriages. Fig. 3 is a sectional elevation of my improved nippers on line *y y* of Fig. 4. Fig. 4 is a plan view, partly in section, of same; and Fig. 5 is a cross-section of the nipper-axle on line *x x* of Fig. 4. Fig. 6 is a transverse section taken on a line in front of the gripper-carrying rods.

A is the chain of type-carriages, and consists of alternate carriages H H′, hinged together to form an endless chain by shafts B, upon the ends of which are the supporting-wheels B′, which run upon endless tracks *b*. The carriages H H′ are provided with lugs *h h′*, through which the shafts B pass to make a perfect hinge and prevent all lateral movement to said carriages independently of each other. Every alternate carriage, as H, is provided with nippers E E′, and to allow room for the operating mechanism they are separated at the top, as shown in Sheet 2.

To the end of each carriage H are bolted or otherwise secured bearings K K K′, those K K being for pins *k k* on the ends of plates O O, and K′ being for the hub I of the pinion J. A rod, F, is secured to the plates O O and pinion J and its hub I, and is arranged out of center, as shown. By this means, if the pinion is rotated, both of the plates O O are also rotated, they being all on the same center. Loosely journaled in these plates O O and pinion J, and on each side of the center, are rods L L, which carry, firmly secured thereon, the sets of clamping-straps M, three in number, and arranged equidistant from each other. The rods L L are notched, as at *l l*, and the nippers E E′ are arranged to be clamped and held by said straps, and their ends fit into said notches, to prevent any possibility of their rotation on shafts L L. Said notches perform the function of keys. Screws *m* lock the nippers to the straps and secure them on the shafts or rods. A rod, N, and spring N′ keep the nippers pressed together, so as to clamp and hold the sheet of paper, P; but it is evident that the springs might be arranged upon the rods or in other equivalent ways, and yet perform the same function.

T represents the type, secured upon the carriages in any desired manner, and the nippers are made to meet on a plane coinciding with the face of the type. To insure this each of the rods L L is provided on its ends with levers Z, which are secured fast upon them, and, through the aid of stops U U, cause the nippers to meet even with the face of the type.

The U-shaped piece R is provided on one of its legs with a rack, *r*, and upon the other with a guide-groove, *r′*, in which the pinion respectively meshes and rotates. This piece R is guided in grooves r^2 in the carriages H H′, and by slot R′ upon flattened surfaces *b′* of the shaft B, and by the pinion J and its hub, and, if desired, the legs may be connected by a piece, R^2. Upon the bottom of piece R is the friction-roller S, which runs in cam-groove S′ S^2 S^3 S^4, and by which the pinion is indirectly rotated at proper intervals to reverse the sheet P from the type on carriage H′ to that upon carriage H, or vice versa. The part S′ of the cam-groove causes the nippers to hold the paper over the type on carriage H′; part S^2 causes

them to reverse the paper and lay it over type on the carriage H; part S^3 holds the nippers in the latter position, and part S^4 causes them to gradually reverse back to the original position; but in so doing the cam V′ strikes one of the levers Z and opens the nippers to receive a fresh sheet from the fingers W, upon which it is fed.

The type are inked by inking roller or cylinder D, provided with inking-faces *d* and notches *d′* to span the nipper mechanism.

After the nippers have received a sheet of paper it is laid over type on carriage H′, and after passing under the impression-cylinder G, and before it reaches the second impression-cylinder, G′, it is reversed by the cam S^2 onto the type on carriage H, and then passes under cylinder G′, and is then printed upon both sides, and as it passes on one of the levers Z is depressed by the cam V separating the nippers, and the sheet is run off by the tapes Y to the folding and binding mechanism.

The feed, the cylinders G G′, having impression-surfaces *g* and spaces *g′*, and the receiving, folding, and binding mechanism are substantially as shown in the patent granted to me and previously referred to.

It is evident that the nippers may be made to turn from carriages H to carriages H′ while passing between the cylinders G G′, which cylinders are adapted to print from every alternate carriage, the former printing from carriages H′ and the latter from carriages H.

When the machine is adapted to print pamphlets there are two beds of type, T T, upon each carriage and three pair of nippers, as shown in Fig. 4; but it is evident that there may be any number of nippers when the type is otherwise arranged, and, if desired, for some kinds of printing every carriage may be provided with a set of nippers.

I do not limit myself to the exact construction shown, as it may be modified in various ways.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of type-carriages H H′, hinged together at B, bearings K K K′, plates O O, pinion J, with hub I, rack-piece R, rigid rod F, loose rods L L, and nippers E E′, substantially as set forth.

2. The combination of type-carriages H H′, hinged together at B, bearings K K, plates O O, pinion J, rack-piece R, rigid rod F, loose rods L L, levers Z Z, pins U U, nippers E E′, and a spring to press them together, substantially as and for the purpose specified.

3. The combination of nipper-rods L L, notched at *l l*, clamps M, nippers E E′, plates O O, the rod N, and spring N′, substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

HENRY P. FEISTER.

Witnesses:
R. A. CAVIN,
ISAAC FINE.