

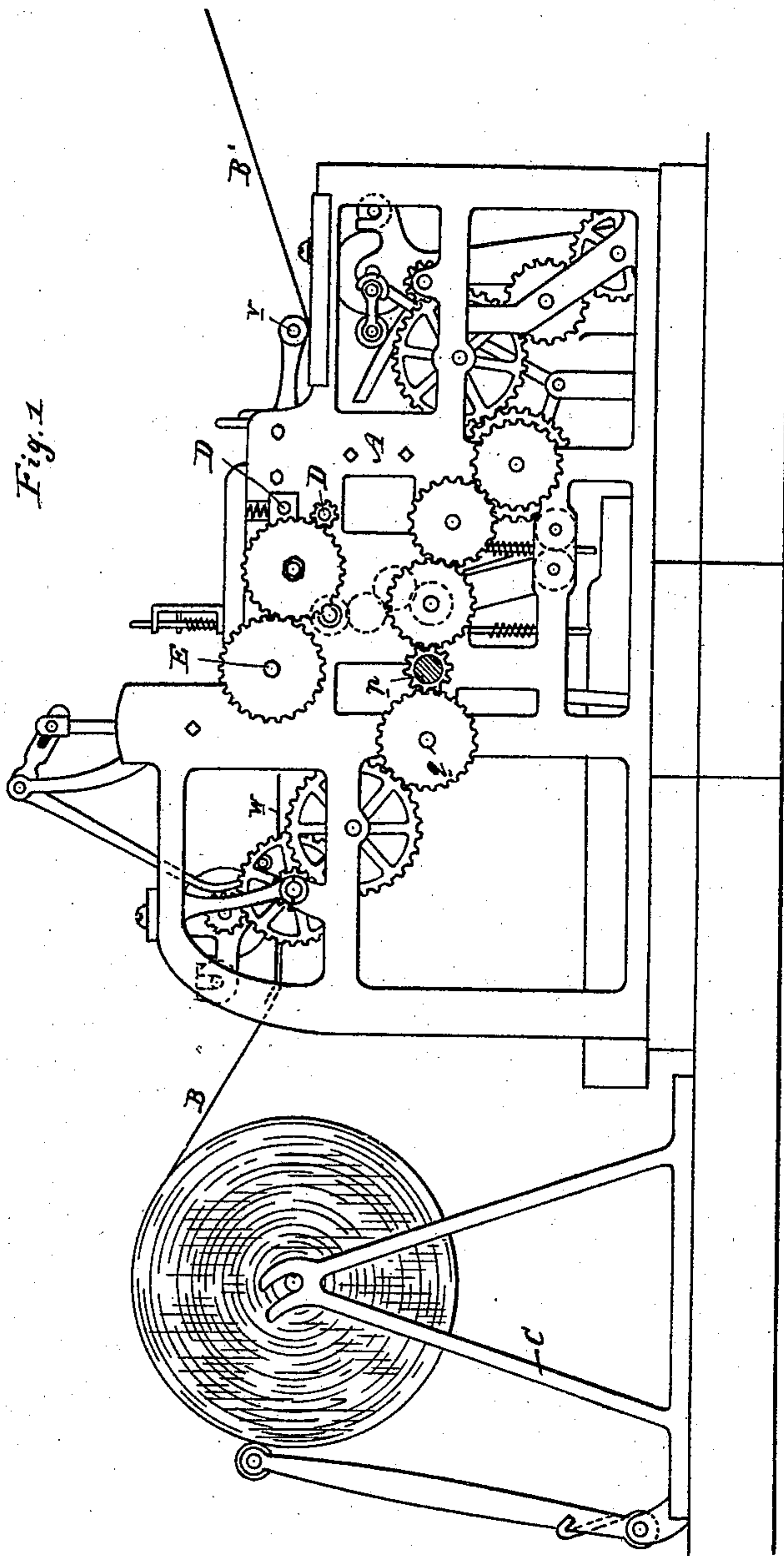
(No Model.)

3 Sheets—Sheet 1.

F. WUELFING.
PRINTING MACHINE.

No. 373,119.

Patented Nov. 15, 1887.



Attest:
John Schuman.
[Signature]

Inventor:
Fredrick Wuelfing.
by his Atty
[Signature]

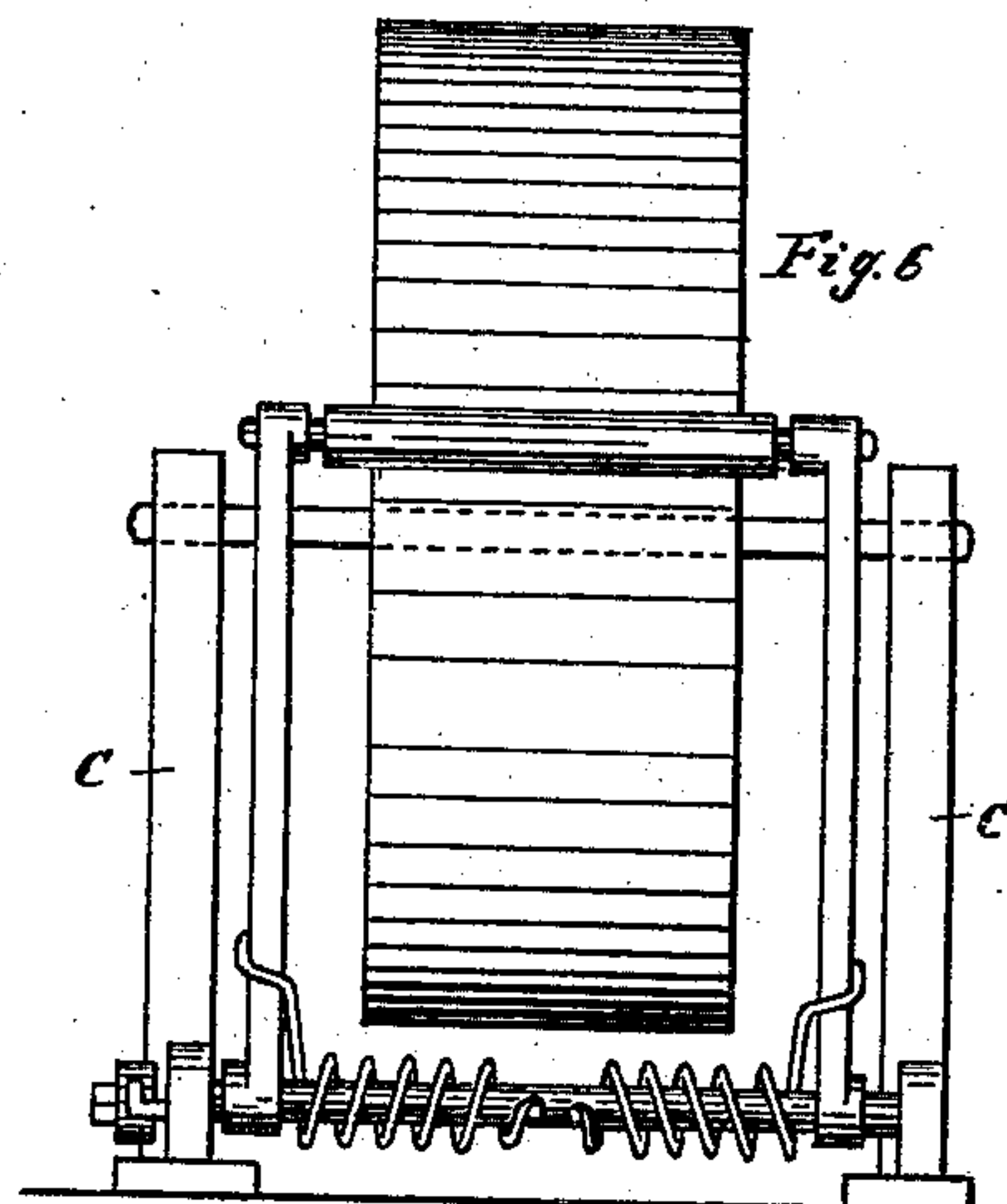
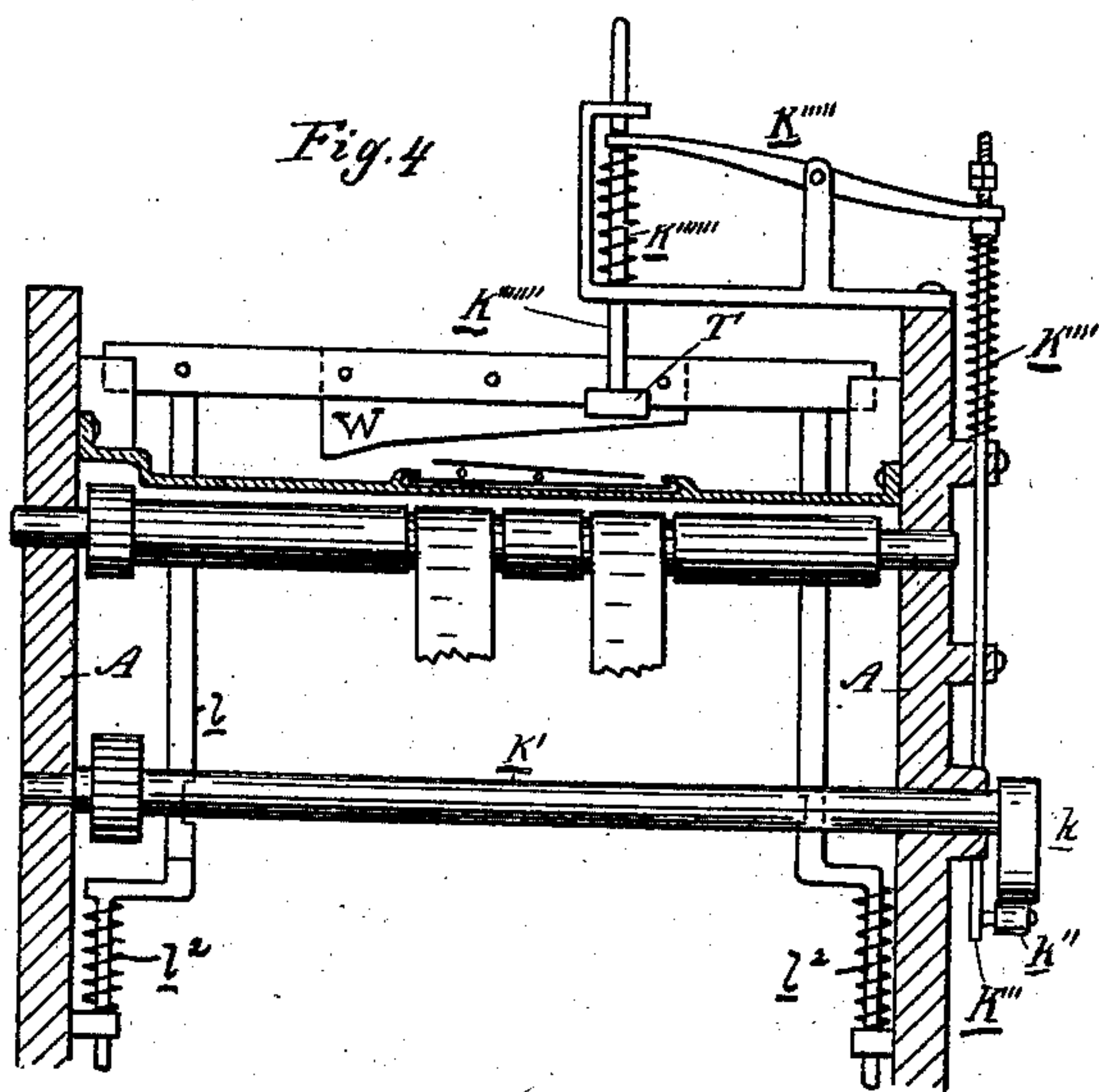
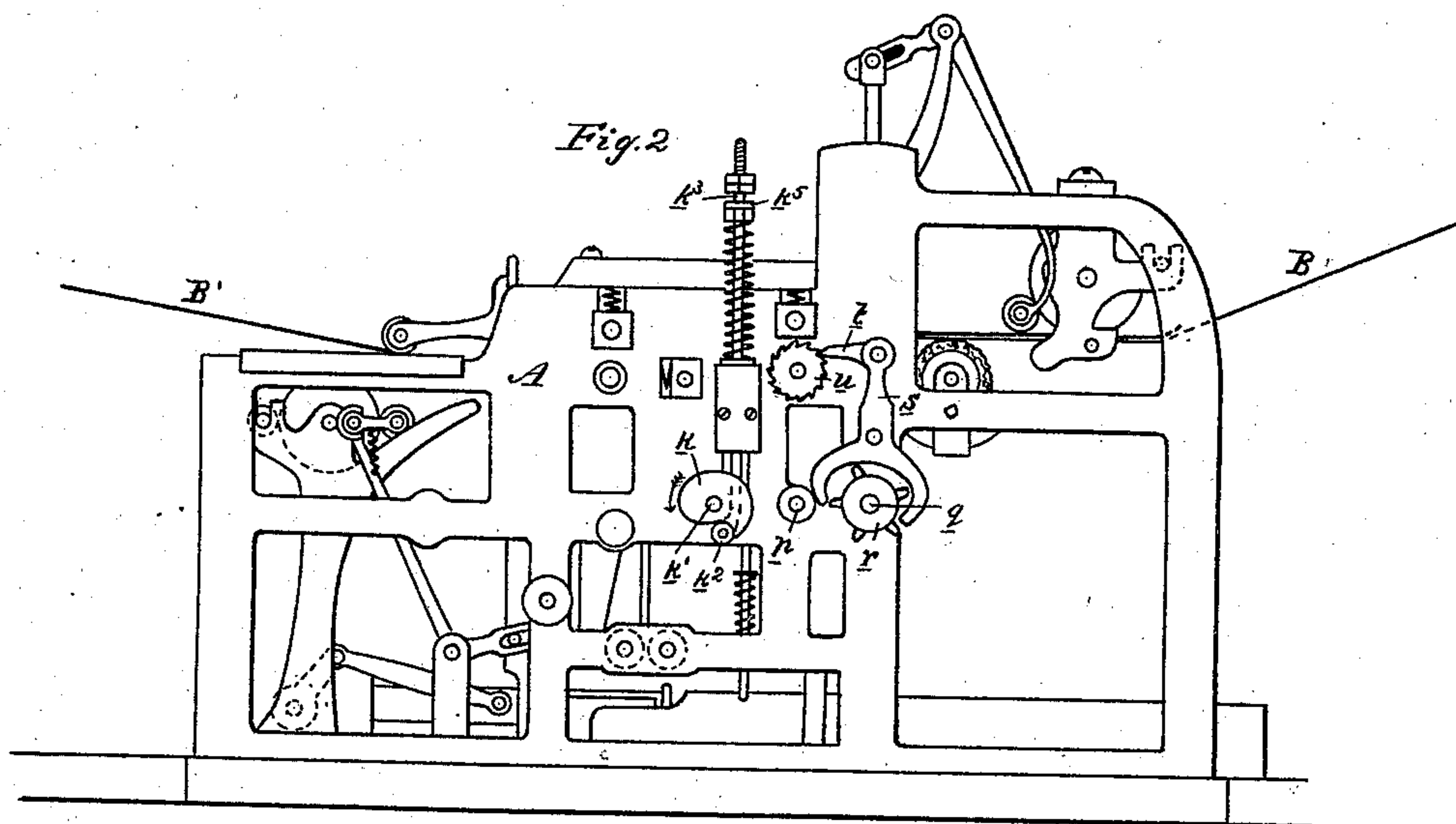
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F. WUELFING.
PRINTING MACHINE.

3 Sheets—Sheet 2.

No. 373,119.

Patented Nov. 15, 1887.



Attest:
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Inventor:
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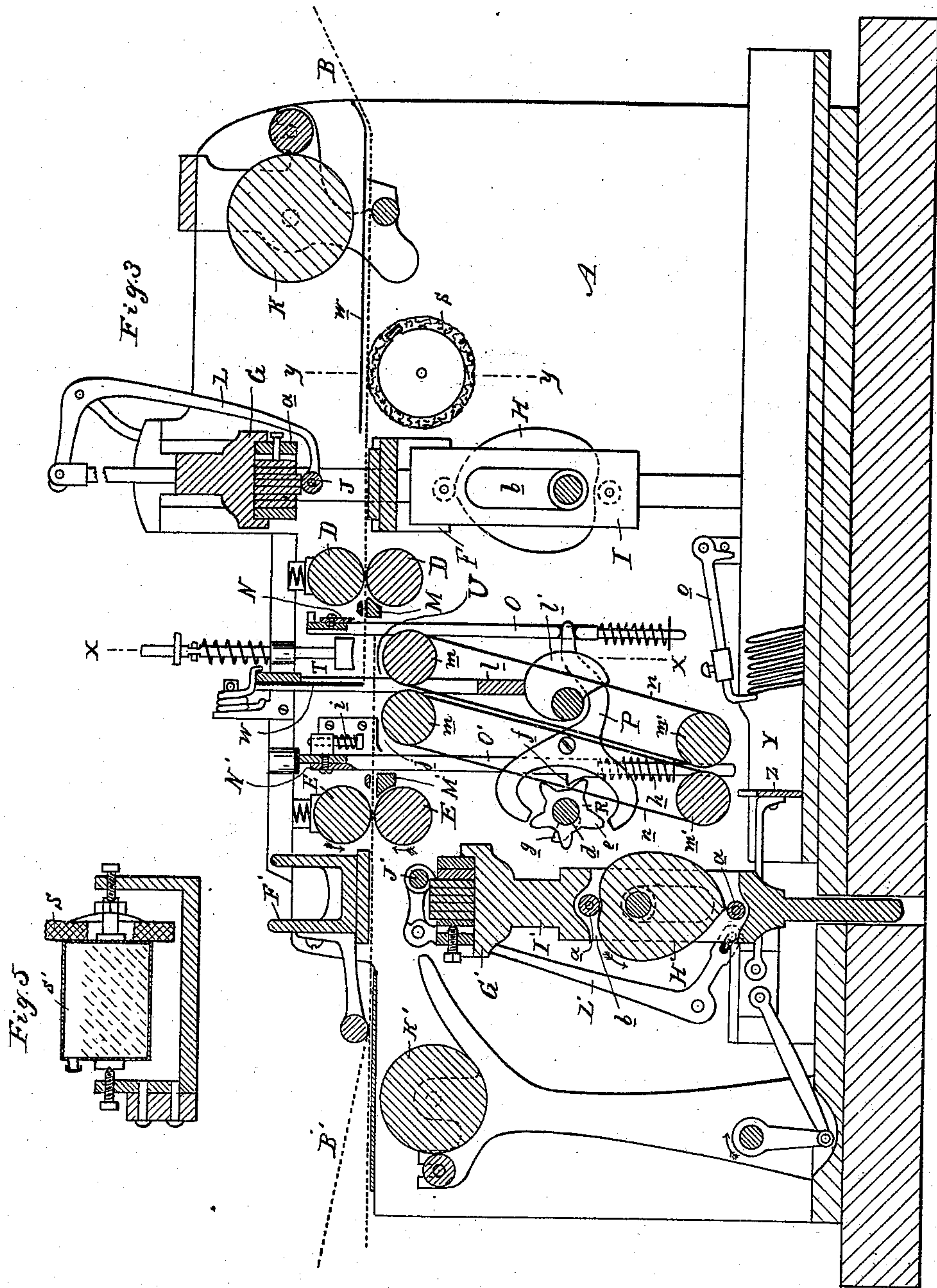
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3 Sheets—Sheet 3.

F. WUELFING.
PRINTING MACHINE.

No. 373,119.

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UNITED STATES PATENT OFFICE.

FREDRICK WUELFING, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF
TO WILLIAM J. H. TRAYNOR, OF SAME PLACE.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 373,119, dated November 15, 1887.

Application filed February 17, 1887. Serial No. 227,874. (No model.)

To all whom it may concern:

Be it known that I, FREDRICK WUELFING, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Printing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to new and useful improvements in printing-machines, and has special reference to that class especially designed for printing slips, labels, or other similar small printed matter.

The invention consists in the improved construction, arrangement, and combination of different parts, as fully hereinafter described, and specifically set forth in the claims.

In the drawings which accompany this specification, Figures 1 and 2 are the two opposite side elevations of my improved machine. Fig. 3 is an enlarged vertical longitudinal section. Fig. 4 is a cross-section on line $x x$ in Fig. 3. Fig. 5 is a cross-section on line $y y$ in Fig. 3. Fig. 6 is an end elevation of the paper-roll tension device.

Upon a suitable bed-plate are secured two parallel frames, A A, which form the sides of the machine and support the operating parts thereof.

B is a continuous strip of printing-paper, and B' is a continuous strip of cover-paper, each being supplied from a roll journaled in standards C (not shown for strip B') upon opposite ends of the machine, and provided with a suitable tension device, which in the drawings consists of a loose roll carried by a hinged frame and bearing against the circumference of the roll of paper under the action of coil-springs placed around the hinge-pin of the frame. Each strip of paper is drawn with an intermittent motion from its roll by a pair of feed-rolls, D D and E E, respectively, which feed the strips in horizontal planes, one slightly above the other, and in opposite directions.

A separate printing device is arranged in the path of each strip before it passes through its respective feed-rolls, consisting, respectively, of the stationary platens F F' and the vertically-reciprocating beds G G', which carry the

type by means of a removable chase. The platen and bed F G are arranged to print the slips on the top face of the strip B, and the platen and bed F' G' are arranged to print the address on the bottom face of the cover-strip.

The beds G G' are reciprocated vertically by means of suitable cams, H H', which engage with the anti-friction rollers a , secured in vertical slots b in the gates I I', to which the beds are secured. Each bed is provided with an inking device, consisting of the inking-rollers J J' and the ink-distributing rolls K K', respectively. The inking-rolls are carried by the bell-crank levers L L', which are actuated by means of suitable connection with the reciprocating beds. After the paper strips leave their feed-rolls they are passed, respectively, over the stationary knife-bars M M', respectively. In conjunction with these bars the vertically-reciprocating knives N N' operate to cut the strips in the following manner:

The knife N is adjustably secured to a vertical gate, O, which moves in suitable guides and engages with the free end of a lever, P, which is oscillated by means of the spur-wheel R on the shaft d . The spurs on this wheel are all of equal length, except one spur, e , which is longer, and therefore imparts a larger oscillation to the lever P than the other spurs. This larger oscillation is adjusted to cut the strip B completely across, while the smaller oscillations occasioned by the smaller spurs are adjusted to only partially sever the printed matter into its component number of slips. The knife N' is adjustably secured to a vertical gate, O', which moves in suitable guides, and is provided with a projection, f , which at every revolution of the shaft d comes in contact with a spur, g , carried thereon, and is thereby caused, in connection with a spring, h , to reciprocatingly actuate the knife N' so as to sever the strip B'. The gate of this knife also carries one or more spring pressure-feet, i , which hold the strip firmly down, while the knife is cutting it, onto a little table, j , placed underneath. The knife N' thus cuts off a suitable piece of cover-paper, B', whenever the knife N cuts off completely the slip of paper after each fifth slip. As soon as the strip containing the five slips is cut off, it is pasted

down on the cover-plate, which latter has been meanwhile advanced the necessary distance underneath to receive it.

The pasting device consists of a little sponge-wheel, S, which is kept wet by absorbing water from a little cylindrical vessel, S', forming a part of said wheel. This sponge-wheel is mounted on centers underneath the paper-strip and revolves by frictional contact therewith. There is no paste or gum applied to the paper, as I prefer to use paper previously gummed, and which can be found already prepared in the market and only needs wetting to make it stick. The sponge-wheel wets the paper at the stub ends of the slips, and by the time the slips are printed and cut off the wetting has softened the gum and the stub ends of the slips will stick to the cover-paper when brought in contact therewith. This is done by means of a pad, T, which by a blow firmly presses the stub ends of the slips onto the cover-paper, which is supported underneath by a little table, U. This blow of the pad T is delivered at the proper time by means of the devices shown in detail, Fig. 4, and wherein a cam, k, revolving on a shaft, k', engages with a little roller, k'', at the end of a connecting-rod, k''', which latter has a coil-spring, k''', sleeved upon it, all so arranged that the cam in revolving alternately compresses this spring and then suddenly releases it again, and the resiliency of this spring is then communicated to the pad by means of the lever k'''''. A spring, k''''', upon the guide-rod k''''', to which the pad T is secured, effects a slight rebound after the blow of the pad is delivered.

As soon as the slips are pasted to the cover-paper the folder W is thrown into action. This folder is carried by a gate, l, which is reciprocatingly actuated on by the cam l', which lifts the gate, and the resiliency of the spring l'', which causes a sudden depression of the same. This folder in descending bears against the center of the cover-paper, and, doubling it up, forces it down, together with the slips pasted to one-half thereof, between the folding-rolls m m. These folding-rolls revolve in opposite directions to each other and carry belts n, which run close and parallel with each other in a downward direction over counter-rolls m', whereby each folded cover, with its contents, is carried into a little trough, Y, placed underneath, and from there a reciprocating paddle, Z, pushes them sidewise toward the discharge end of the trough, the path of the paddle being kept clear by a little retaining-hook, o.

The machine may be operated by hand or by mechanical power suitably applied to the main shaft p, and from there, by suitable gearing, it is transmitted to the other operating parts of the machine. The feed-shaft q, which is contiguous to the main shaft, is provided at one end with a spur-wheel, r, which oscillates the feed-lever s, and communicates, by means of the feed-pawl t and ratchet u, an intermit-

tent feed-motion to one set of feed-rolls, and from there, through suitable intermediate cog-gearing, to the other set of feed-rolls.

The strip of cover-paper is guided to its respective feed-rolls by passing under a loose roll, v, and the strip of printing-paper B is guided by being passed underneath a fixed table, w, which acts in connection with the wetting-wheel to keep the paper in contact therewith.

It is obvious that, instead of using gummed paper for printing the slips on, an ordinary paper strip may be used by substituting for the wetting-wheel S a suitable wheel which applies liquid paste.

What I claim as my invention is—

1. The combination of the following elements: a set of feed-rolls arranged to feed a strip of paper suitable for printing-strips, a second set of feed-rolls arranged to feed a strip of cover-paper in a direction opposite to the other strip, a printing device for addressing the cover-paper, a printing device for printing the slips, a reciprocating knife for severing the cover-paper, a presser-foot carried by said knife, a reciprocating knife for severing a definite number of printed slips from the strip of paper and also to partially sever the individual slips, a pressure-pad arranged between said knives, a device for pasting and attaching the stub ends of the slips to the cover-paper, and a folding device for inclosing the slips within the cover, all substantially as described.

2. The combination of a pair of feed-rolls adapted to intermittently feed a strip of paper from a roll of a printing device consisting of a reciprocating bed, a stationary platen, and an automatic inking device, of a marginal wetting or pasting wheel, of a reciprocating knife carrying a presser-foot and arranged to sever the strip between the impressions and also to partially sever between the individual slips of each impression, and of a pressure-pad arranged between said knives and adapted to press the stub end of each severed impression against a piece of cover-paper, all substantially as described.

3. In a slip-printing machine, the combination of suitable guides and feed-rolls for delivering a strip of printing-paper and a strip of cover-paper, and arranged to guide and feed the strips in horizontal planes against each other and at slightly-different height, of a printing device for each strip, consisting of a stationary platen and a vertically-reciprocating bed, of a vertically-reciprocating knife arranged to sever the strip of printing-paper between the impressions and to partially sever it between the individual slips of each impression, of a vertically-reciprocating knife for severing the cover-strips into individual covers, of a marginal wetting or pasting wheel, of a pressure-pad adapted to press each severed impression of slips onto the cover-paper, of a folding device arranged to inclose the slips of

each impression within the cover, and of a delivering device, all arranged substantially as described.

4. In a slip-printing machine having feeding, printing, cutting, and pasting devices, substantially as described, a pressure-pad independent of the knives and arranged between the same and adapted to press the stub ends of the slips onto the cover-paper by delivering a blow thereon, substantially as described.

5. In a slip-printing machine having feeding, printing, cutting, and pasting devices, substantially as described, a pressure-pad arranged between the cutters and adapted to press the stub ends of the slips onto the cover-paper by delivering a blow thereon, in combination with a rebounding-spring on said pressure-foot, a lever for actuating said pad, and intermediate connections for operating said lever, substantially as described.

6. In combination with the knife N, adapted to sever the slips, and the knife N', adapted to

sever the cover-strip, the gates O O', carrying said knives, the oscillating lever P, pivoted between said gates and having one arm engaging with the gate O, the shaft d, carrying the spur g, engaging with the lug f on the gate O', and the spur-wheel R, engaging with the lever P and having the enlarged spur e, all combined and arranged to operate the knives, substantially as described.

7. The combination, with the vertical gates O O', knives N N', and lever P, of the transverse shaft d, spur-wheel R thereon, and having one long spur e, projection f on the gate O', spur g on said shaft, spring h on said gate O', and the spring presser-foot i, carried by the knife N', all substantially as and for the purpose specified.

FREDRICK WUELFING.

Witnesses:

H. S. SPRAGUE,
E. J. SCULLY.