

(No Model.)

3 Sheets—Sheet 1.

W. SCOTT.

MACHINE FOR CUTTING AND FOLDING SHEETS INTO PAMPHLETS.

No. 426,647.

Patented Apr. 29, 1890.

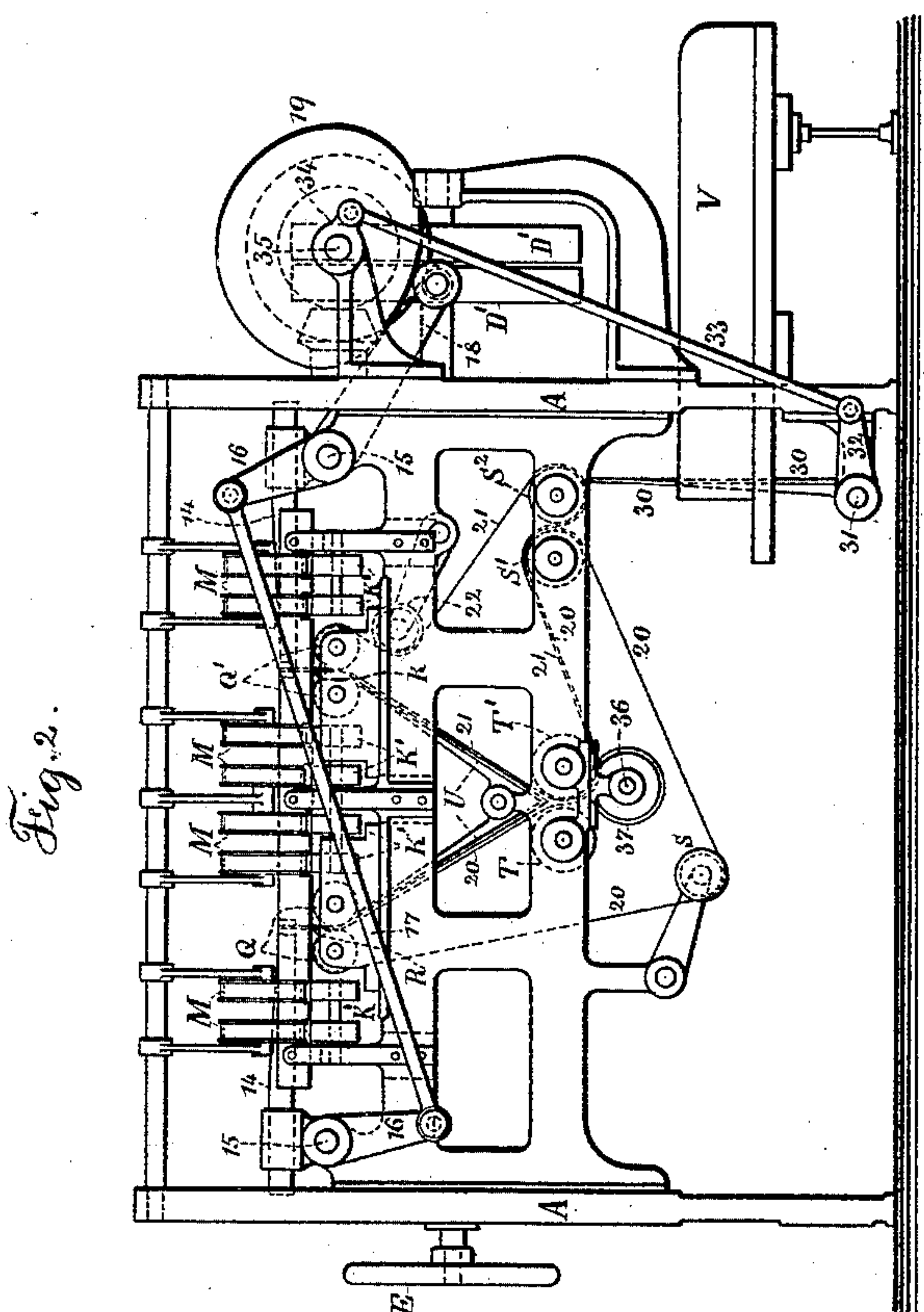
(No Model.)

3 Sheets—Sheet 2.

W. SCOTT.
MACHINE FOR CUTTING AND FOLDING SHEETS INTO PAMPHLETS.

No. 426,647.

Patented Apr. 29, 1890.



Witnesses:
J. Stair
Chas. H. Smith

Inventor.
Walter Scott
per Lemuel W. Ferrell, atty.

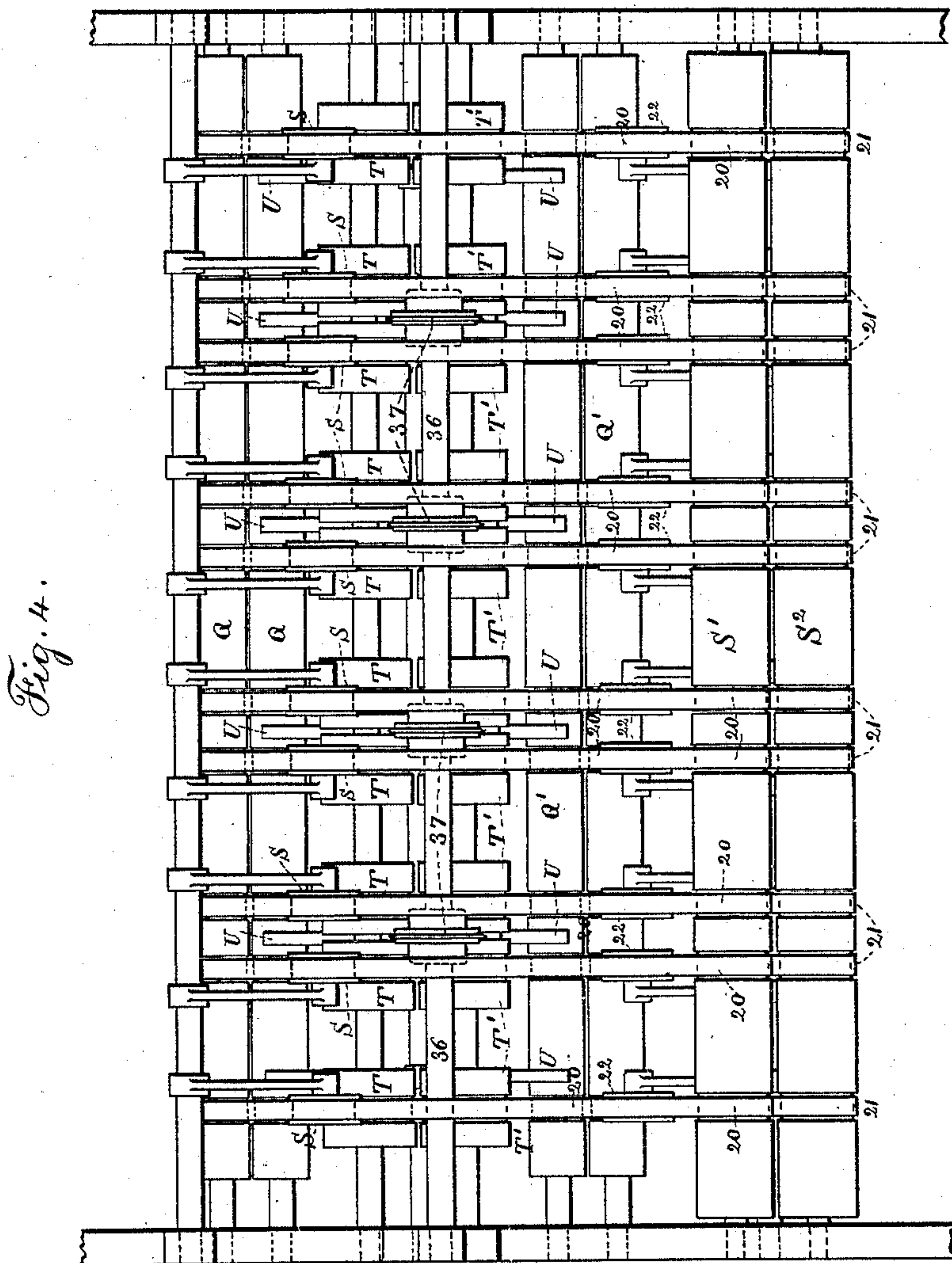
(No Model.)

3 Sheets—Sheet 3.

W. SCOTT.
MACHINE FOR CUTTING AND FOLDING SHEETS INTO PAMPHLETS.

No. 426,647.

Patented Apr. 29, 1890.



Witnesses:

J. Hail
Geo. T. Pinckney

Inventor:

Walter Scott

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UNITED STATES PATENT OFFICE.

WALTER SCOTT, OF PLAINFIELD, NEW JERSEY.

MACHINE FOR CUTTING AND FOLDING SHEETS INTO PAMPHLETS.

SPECIFICATION forming part of Letters Patent No. 426,647, dated April 29, 1890.

Application filed March 11, 1889. Serial No. 302,846. (No model.)

To all whom it may concern:

Be it known that I, WALTER SCOTT, of Plainfield, in the county of Union and State of New Jersey, have invented an Improvement in Machines for Cutting and Folding Sheets into Pamphlets, &c., of which the following is a specification.

This invention is especially designed for separating, folding, and delivering pamphlets and separate signatures for books printed on large sheets and from duplicate stereotype or electrotypes, &c.

In my improvements two printed sheets are taken at the proper time by grippers, and to one of the sheets two or more lines of paste are applied, and the sheets are brought together so as to adhere on the lines of the paste, and such sheets are separated parallel to the lines of paste and carried to the folding mechanism, and the folding is performed usually upon the line of paste, and the folded sheets are brought together and delivered simultaneously into the box or holder.

In the drawings, Figure 1 is a general elevation of the folding-machine with a portion of the frame removed to show the gripper-cylinders. Fig. 2 is an end view of the machine. Fig. 3 illustrates the gearing connecting the driving-shaft and gripper-cylinders, and Fig. 4 is a diagrammatic and inverted plan view of the tapes, rolls, and cutters in the folding apparatus.

The frames A of the machine are adapted to receive the feeding and folding devices and to support the supply-tables B B', which are placed at an inclination, as usual in printing-presses and folding-machines.

C C' are gripper-cylinders, provided with grippers 2 3, that are actuated by any usual or suitable mechanism, so that these grippers close upon and take off the sheets from the respective supply-tables B B'. The mechanism for rotating these cylinders C C' may be of any usual character. I have shown the driving-shaft D and belt-pulleys D', and gear wheels and pinions 4 5 6 7 for communicating motion to the respective cylinders C C', and the hand-wheel E upon the shaft of the pinion 5 is a convenient means for moving the machine by hand in adjusting the parts.

Upon suitable supports the paste-fountains F are sustained, and these can be adjusted

laterally of the machine, so that the paste-wheels 8 apply lines of paste to the surface of the paper as it is moved by the grippers and drawn from the supply-table B' around the cylinder C'. Any suitable number of paste-fountains may be used, and they generally will be placed in such positions that the lines of paste will be distant one-quarter of the width of the sheet from the edge, where two paste-fountains are made use of.

I make use of tapes or belts for holding the sheets of paper upon the respective cylinders and bringing such sheets of paper together. The sets of belts or tapes 10 pass around the cylinder C beneath the roller G, and along beneath the stationary guide H contiguous to the cylinder C', up over the roller K, along through the folding-machine, around the roller K', back over the roller L beneath the tightener L' to the cylinder C. The sets of belts or tapes 11 pass around the cylinder C', over the roller K, and around the roller M. The sets of belts or tapes 12 pass around the rollers N and G and serve to guide the sheet as it passes around the cylinder C down below the roller G and beneath the stationary guide H, and the sets of tapes and belts 13 pass around the rollers O O' and serve to hold the sheet from the table B' as it passes around the cylinder C' and enters between the stationary guide H and said cylinders C'. This stationary guide H, if formed of a series of V-shaped bars supported upon a suitable cross-shaft and occupying positions intermediate to the tapes and the lower surfaces of these guides H, are slightly above the belts or tapes 10 as they pass from the rollers G to the cylinder C', and the upper surfaces of these guides H are curved to correspond with and at a slight distance from the surface of the cylinder C'.

It is now to be understood that the grippers upon the respective cylinders C C' are placed in such positions that the advancing ends of the two sheets will meet and coincide at the apex of the guides H, the sheet from the table B' passing around the cylinder C' to this converging point and the sheet from the table B passing around the cylinder C and beneath the roller G and guides H, and after the coinciding ends of the sheets come together such sheets are carried between the belts 10

and 11 beneath the roller C' and up over the roller K to the folding mechanism hereinafter described, and in their travel the two sheets pass the rotary slitter P, the same being composed of a circular knife upon a cross-shaft running by contact with the paper and acting to separate the same longitudinally and in the middle of the sheets. It is to be understood that two or more of these slitters may be used on the same shaft where the paper is to be separated longitudinally more than once.

The folding mechanism made use of by me is composed of pairs of rollers Q Q' Q' Q' and the folding-blades R R'. These folding-blades are upon arms 14 and shafts 15, and there are cranks 16 at the ends of the shafts and connecting-rod 17 and a lever-arm 18 on one of the shafts acted upon by a cam 19 on the shaft 35 to move the two folding-blades simultaneously and at the right time for folding the two sheets downwardly between the rolls Q Q' after they have been brought into position by the sets of tapes 10 and 11. The set of tapes or belts 20 passes around one of the rollers Q below the roller T' over the delivery-roller S' below the tightening-roller S and up to the roller Q. Another set of tapes or belts 21 passes from one of the folding-rollers Q' beneath T' over the delivery-roller S', beneath the other delivery-roller S', and beneath the tightening-roller 22 to the roller Q', and there are between the converging sets of tapes 20 and 21 and above the rolls T T' guides U between which and the respective sets of tapes 20 and 21 the folded pamphlets or signatures pass down to the rollers T T', and they pass jointly through between them as they are carried by the sets of tapes 20 and 21 to and between the delivery-rolls S' S', from which they fall into the box or holder V, and this is provided with vibrator-fingers 30 upon the shaft 31 and acted upon by the crank-arm 32, connecting-rod 33, and revolving crank 34 upon the shaft 35.

The vibrator-fingers are of ordinary character and pack the signatures into the box or trough and force them along therein, and I remark that the shaft 35 is preferably revolved by bevel-gearing D³ from the shaft of the cylinder C'.

I have only shown two folding-blades R R'; but if the sheet is divided longitudinally by more than one slitter P the number of the folding blades and rollers acting therewith must be correspondingly increased.

I provide a shaft 36 with one or more circular movable cutters 37, clamped thereon, and these are used to separate the folded sheets into signatures or pamphlets, as such folded sheets are carried between the belts 20 and 21 and around the roller T', there be-

ing peripheral grooves in such roller T' for the edges of the rotary separating-cutters to enter; or such roller T' may be composed of sections or pulleys that are movable, so as to be set at the proper places for the edges of the circular cutters to pass in between pairs of such pulleys. By these improvements the two sheets are pasted together and cut longitudinally, and then folded on the lines of paste, and then cut up transversely into the separate sheets or signatures and packed into the box or delivery-trough.

I claim as my invention—

1. The combination, with the supply-tables B B' and gripper-cylinders C C', of the paste fountains and wheels for applying lines of paste to the surface of the sheets passing around the cylinder C', sets of belts or tapes 10 and 11 and their respective rollers, and the stationary guide H, for bringing the two sheets together below the cylinder C' and for conveying the associated sheets to the folding mechanism, and the slitter P, acting to separate the sheets longitudinally as they pass around the cylinder C', substantially as set forth.

2. The combination, with the supply-tables B B' and gripper-cylinders C C', of the sets of belts or tapes 10 and 11, passing around the respective cylinders, the guide-rollers for such sets of tapes, the stationary guide H below and adjacent to the cylinder C', for guiding the two sheets and bringing them together between the tapes or belts 10 and 11 and beneath the cylinder C', and the sets of tapes or belts 12 and 13 and their respective rollers acting between the cylinders C C' for pressing the sheets against such cylinders as they pass around the same, the rotary slitter P, and the folding mechanism for receiving and folding the sheets, substantially as set forth.

3. The combination, in a folding-machine, of two supply-tables, two cylinders around which the sheets are carried from the supply-tables, the sets of tapes or belts and the rollers for the same, the paste-fountains and paste-wheels for applying to one of the sheets lines of paste to cause such sheets to adhere together, a slitter acting intermediately of the lines of paste to slit up the two pasted sheets, and folding mechanism acting at the lines of the paste to fold the separated sheets, and belts and rollers for acting upon the folded sheets, and a box for receiving such folded sheets, substantially as set forth.

Signed by me this 5th day of March, 1889.

WALTER SCOTT.

Witnesses:

GEO. T. PINCKNEY,
HAROLD SERRELL.