

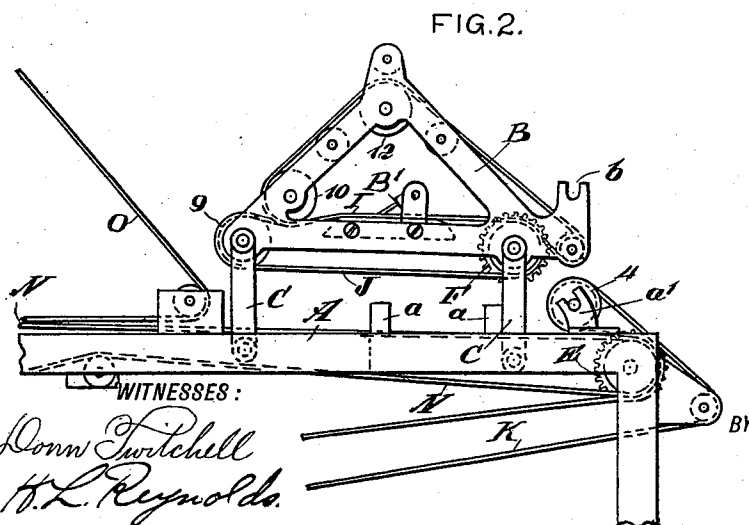
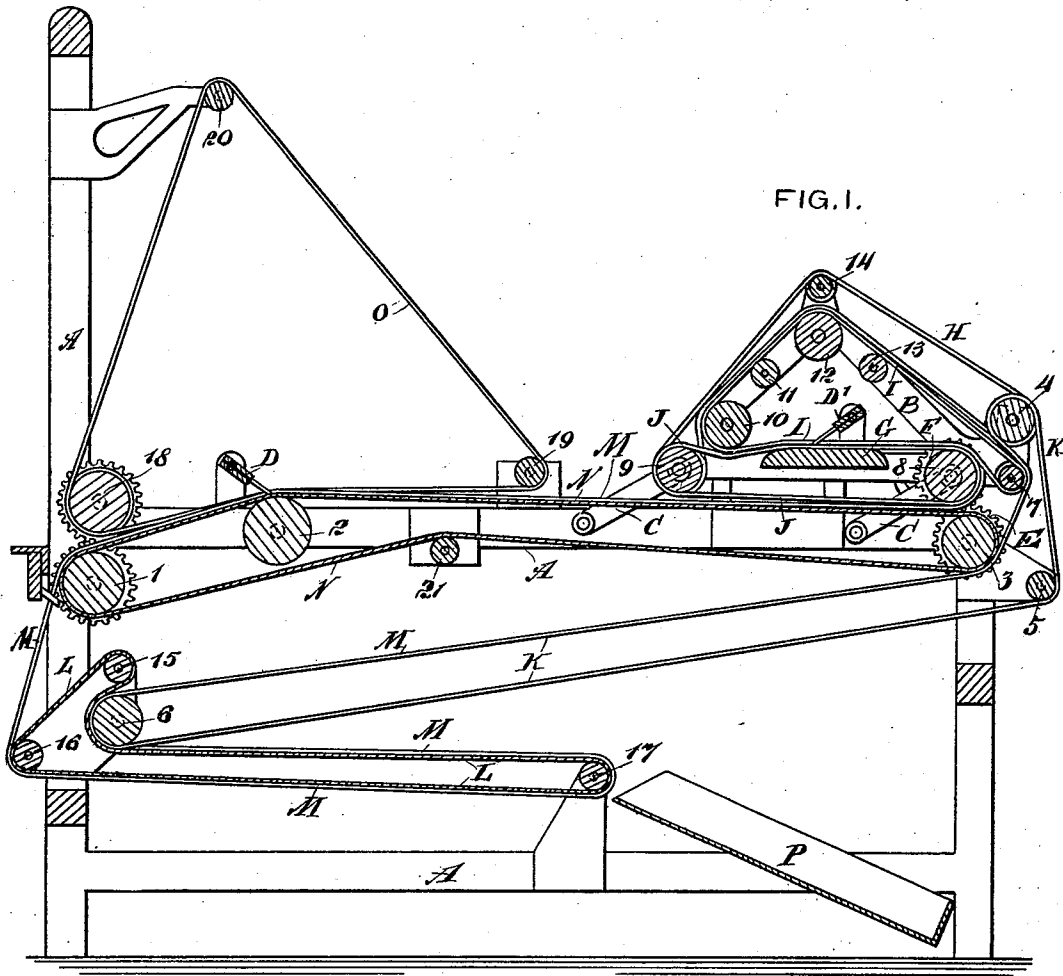
(No Model.)

2 Sheets—Sheet 1.

C. STOLL.
RULING MACHINE.

No. 578,169.

Patented Mar. 2, 1897.



WITNESSES:

Donn Twitchell
H. L. Reynolds.

INVENTOR

C. Stoll.

ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

C. STOLL.
RULING MACHINE.

No. 578,169.

Patented Mar. 2, 1897.

FIG. 3.

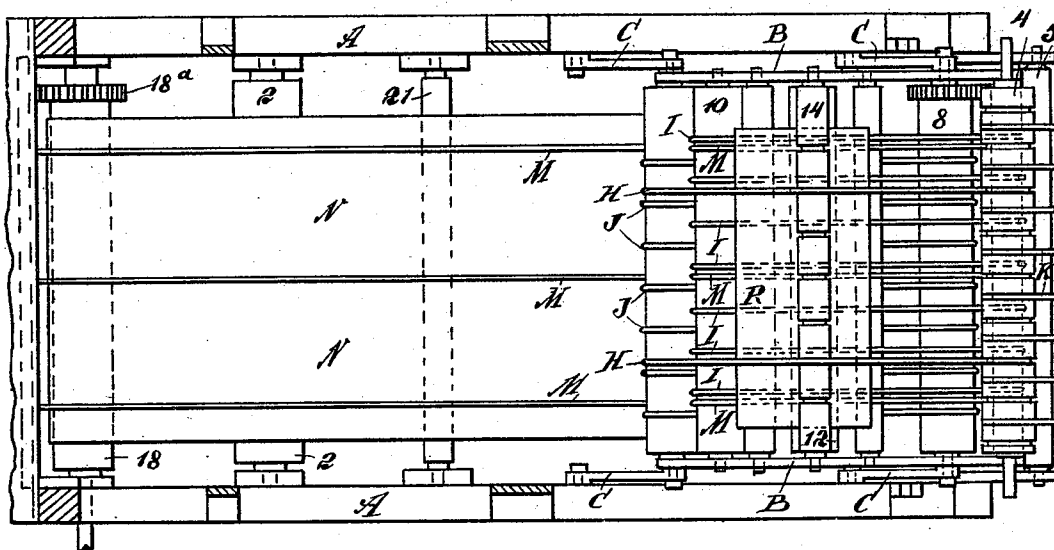


FIG. 4.

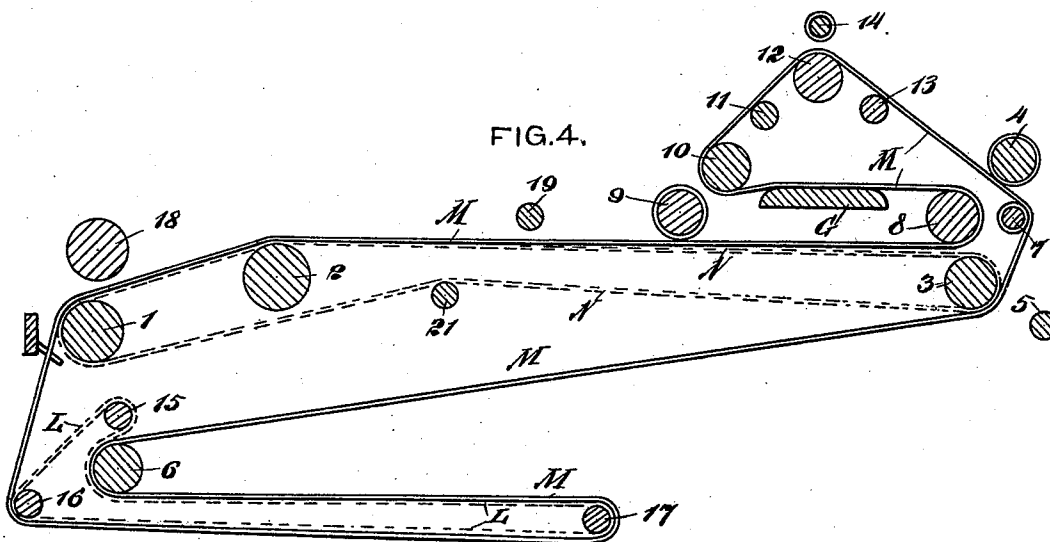
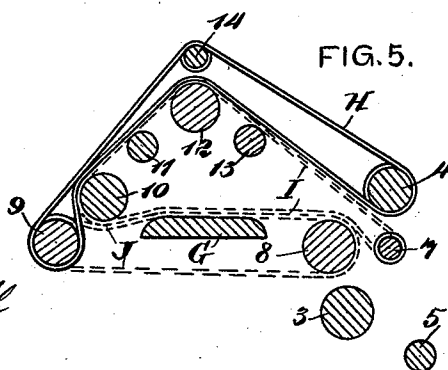


FIG. 5.



WITNESSES:

Donn Twitchell
H. L. Reynolds.

BY

INVENTOR

C. Stoll

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES STOLL, OF CHICAGO, ILLINOIS.

RULING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 578,169, dated March 2, 1897.

Application filed November 30, 1896. Serial No. 613,915. (No model.)

To all whom it may concern:

Be it known that I, CHARLES STOLL, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved
5 Ruling-Machine, of which the following is a full, clear, and exact description.

My invention relates to an improvement in ruling-machines; and it consists of novel means by which a double-ruling attachment
10 may be readily attached to or disconnected from the ordinary mechanism of a single-ruling machine, enabling it to do single or double ruling at will, and of details which will be pointed out in the claim.

15 Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional longitudinal elevation of my device as applied to a ruling-machine. Fig. 2 is a side elevation of my device
20 shown raised or out of use. Fig. 3 is a top plan view of the machine with my attachment applied thereto. Fig. 4 is a longitudinal diagrammatic section showing the course of the cords which surround the entire machine and are to be inserted when the attachment is to be put in use, and Fig. 5 is a
25 similar diagram showing the course of the cords about the attachment.

30 The object of my invention is to provide an attachment for single-ruling machines which will enable double-ruling to be done thereon, and which may be connected thereto for this purpose or thrown out of use when
35 single-ruling is to be done.

In the drawings, A represents the supporting-frame of the ruling-machine. This supporting-frame has the usual rollers 1 2 3,
40 carrying a belt or band N, upon which the paper is fed and carried forward, and a roller 21, supporting the under side of this belt. It also has rollers 18, 19, and 20 placed above this belt N, and carrying cords O, by which
45 the paper is held down upon the belt N. It also has the rollers 15, 16, and 17, carrying a second belt L, which carries the sheets of paper forward after ruling and deposits them in a rack or box P. Another series of cords
50 K, passing over rollers 5, 6, 3, and 4, are provided, as in the usual single-ruling machine.

The mechanism thus described is that common to the ordinary ruling-machine.

The roller 4 is supported upon brackets *a'*, so that it may be readily moved. The auxiliary frame B, carrying the rollers and cords
55 which carry the paper into a proper position for the second ruling, is supported upon pivoted arms C, connected to the main frame A. In the position shown in Fig. 2 these are raised, the attachment being thereby thrown
60 out of operation. The rollers and the direction of the cords are shown in detail in Fig. 5. The roller 8 is provided with a gear-wheel F, meshing with a gear-wheel E upon the
65 roller 3. The roller 8 and the roller 9 are surrounded by cords J, which carry the paper. These pass over the board G, upon which the ruling is done. A roller may be substituted for this board, if desired.

70 The second ruling device is shown at D'. The first ruling device is shown at D. The cords I (shown in dotted lines in Fig. 5) pass about the rollers 7, over rollers 13, 12, and 11, about roller 10, and then back over the ruling-board G and roller 8 to the roller 7. These
75 cords are upon the upperside of the paper and hold the same down as it passes over the ruling-board G. The third cord H (shown in full lines in Fig. 5) passes about the roller 4, over the roller 14, about the roller 9, and over the
80 rollers 10, 11, and 12 back to the roller 4. This cord presses upon the upper surface of the paper as it passes over the rollers 10, 11, 12, and 13. In addition to this cords M are
85 passed about the entire machine, following the course of the paper. These cords must be threaded up in the machine whenever the change is made from a single-ruling to a double-ruling machine. These cords pass over
90 the rollers 1 2, and then about the rollers 8, 10, and 12, passing over the ruling-board G, then about the rollers 7 and 3, and then about the rollers 6, 17, and 16, back to roller 1. The cords M are shown in full lines in Fig. 4.
95 This course may be varied by carrying the cords M from the roller 3 direct to the roller 1, omitting that portion passing about rollers 6, 17, and 16.

In changing from a single-ruling machine
100 to a double-ruling machine the roller 4 is removed from its brackets *a'* and placed in

the block *b* of the auxiliary frame when the latter has been swung down to the position shown in Fig. 1. When swung down to this position, the frame rests upon the uprights 5 or blocks *a* attached to the frame. These furnish a firm bearing for the auxiliary frame and exactly define its position.

The paper when fed into the machine passes between the rollers 1 and 18. It is thus placed on top of the belt *N* and the cords *M*. The paper thus passes beneath the first ruling device *D* and is ruled on one side, it then passes along until it passes beneath the cords *J*, passing about the rollers 8 and 9. The cord *M*, passing about the roller 8, carries the paper with it and introduces it between the cords *J* and *I* of the auxiliary frame. It thus passes over the ruling-board *G* and beneath the ruling device *D'*, which rules the opposite side of the paper. In its forward course it then enters between the cords *I* and *H* and passes up over the rollers 10 and 12. At this point the cords *M* are beneath the paper. As it passes beneath the roller 4 the cord *K* engages the upper surface of the paper. It is then held between the cords *K* and *M*. This carries the paper down below the table of the machine and back about the roller 6. After passing beneath the roller 6 the cord *M* is beneath the paper, and when the same has been carried forward to the roller 17 the sheet of paper, being freed from the grasp of the cords, is discharged into the box or tray *P*.

When it is desired to return to a single-ruling machine, the cords *M* are removed from the machine, the roller 4 removed from its bearings, and the auxiliary frame swung to the position shown in Fig. 4. The roller 4

is then placed in its customary bearings in the brackets *a'*. With this attachment it is a very simple matter to change a single-ruling machine into a double-ruling machine and also to throw the double-ruling attachment out of use when single-ruling is to be done. By reason of this, when the machine is run as a single-ruling machine the double-ruling attachment is thrown out of gear and need not be operated. This makes the machine more simple than if the double-ruling attachment had to be operated at all times. This attachment can also be applied to any ordinary single-ruling machine and enable double-ruling to be done, even in small shops, without the purchase of a complete double-ruling machine.

In Fig. 3 I have shown a sheet of paper *R* as in course of passage through the attachment.

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

A double-ruling attachment for a single-ruling machine, comprising an auxiliary frame having rollers and cords or bands passing about the same and coöperating to secure the reversal of the paper, a ruling device carried upon this frame, arms pivoted to the auxiliary and main frames by which the auxiliary frame may be raised clear of the main frame, and means by which the roller carrying the back strings at the rear end may be shifted between the main and the auxiliary frames, substantially as described.

CHARLES STOLL.

Witnesses:

JOHN KRENSER,

CHAS. J. JOHNSON.