

H. K. KING.
SHEET REGISTERING MECHANISM.
APPLICATION FILED APR. 3, 1908.

942,079.

Patented Dec. 7, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

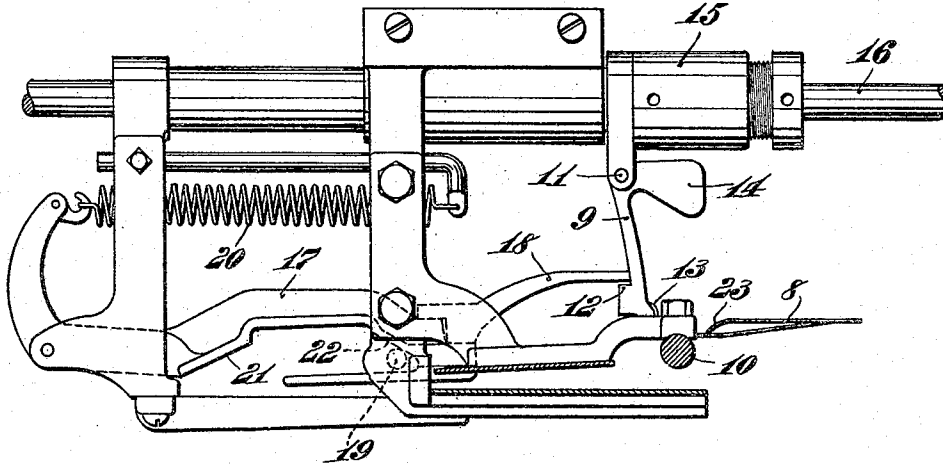


Fig. 2.

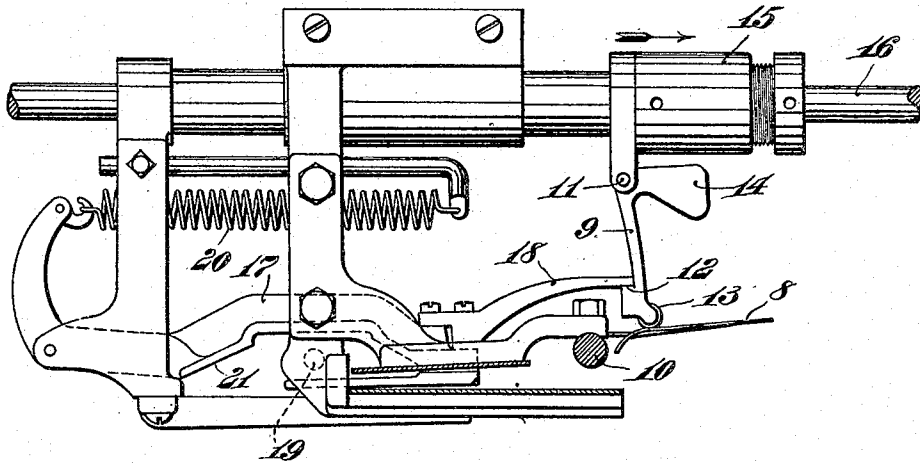
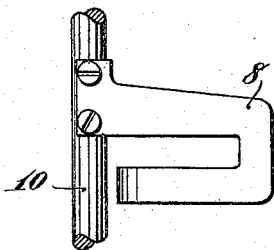


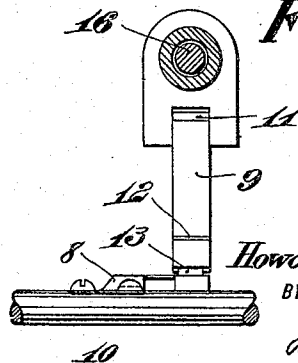
Fig. 6.



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Fig. 7.



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2 SHEETS—SHEET 2.

Fig. 3.

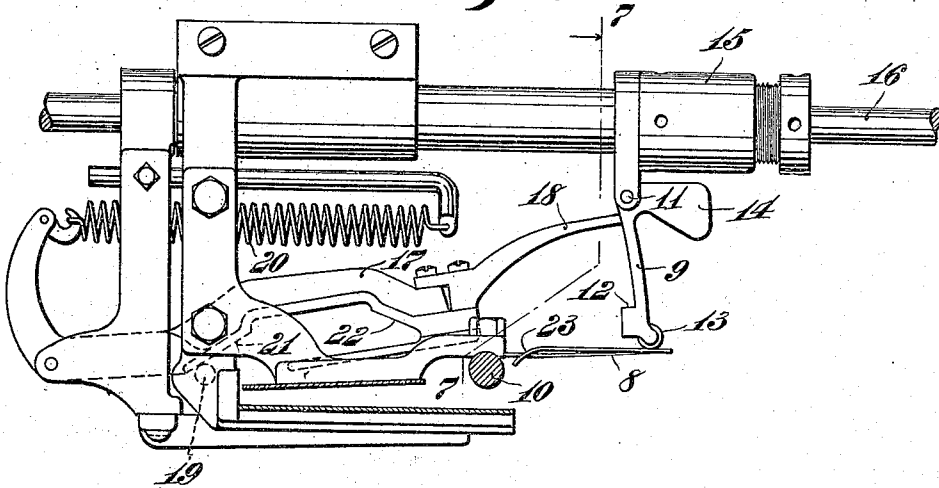


Fig. 4.

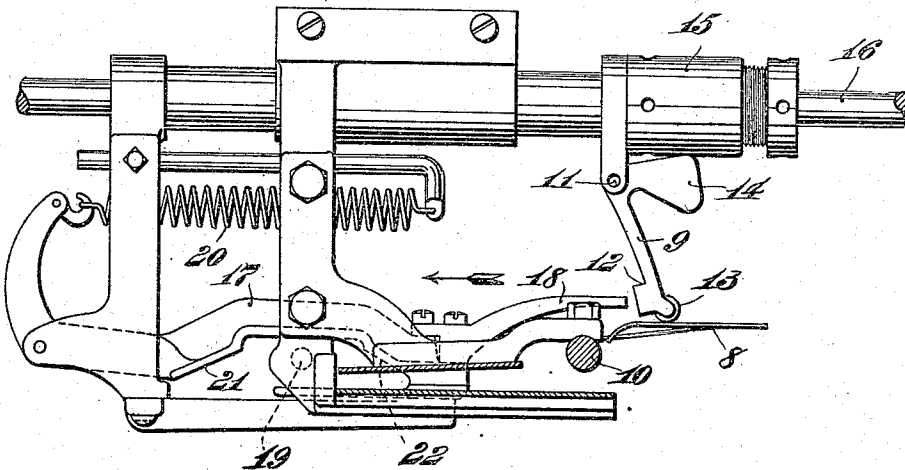


Fig. 8.

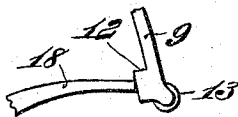
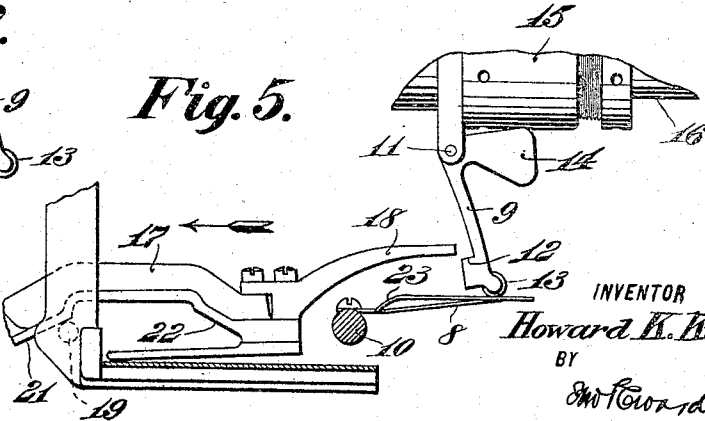


Fig. 5.



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SHEET-REGISTERING MECHANISM.

942,079.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed April 3, 1908. Serial No. 424,969.

To all whom it may concern:

Be it known that I, HOWARD K. KING, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia, State of Pennsylvania, have invented a new and useful Sheet-Registering Mechanism, of which the following is a specification.

My invention relates to improvements in sheet registering mechanism operated in connection with sheet feeding machines for folders, printing presses or the like.

The object of the invention is to afford improved means for moving the sheet to proper position to be operated upon.

My invention is an improvement or modification of the device described and illustrated in patent to me dated Feb. 19, 1907, No. 844,809.

It will be understood that the sheet is carried in the usual way by the tapes from a feed roller until it encounters suitable stops. As the sheet moves in the direction toward the stops it passes between the jaws of a reciprocating nipper either on the right or the left hand of the table as the case may be, which seizes the sheet and pulls it over to a side stop thereby assuring the proper final position of the sheet. As the sheet is then struck between the rollers, having axes transverse the longitudinal extension of the nipper jaws, it will be withdrawn from said nipper jaws in the direction of the longitudinal extension of said nipper jaws. Where, however, it is desirable to strike the sheet through rollers having axes parallel with the longitudinal extension of the nipper jaws, the sheet will be withdrawn from the nipper jaws transverse their longitudinal extension, which necessitates maintaining the said jaws open throughout their entire extension until the entire sheet has passed therefrom. In such case, especially when the sheets are desired to follow closely one after the other, it will be seen that there will be an extremely short interval between the withdrawal of one sheet from the nipper before the entrance of the next succeeding sheet. From which it will be seen that there are some conditions in which it is desirable, if not necessary, to have the nipper jaws maintained open during the entire forward movement thereof to give ample time

for the sheet to be fed between said jaws, and ample time for the sheet to be withdrawn from between said jaws after the sheet has been brought to proper registration. The object of this invention is to provide special means for maintaining said nipper jaws open during the return movement of the same, after bringing a sheet to register.

Referring to the drawings:—Figure 1 is an elevation of my device with the nipper having just started in the forward or return movement. Fig. 2 is a similar view with the nipper about midway the forward movement. Fig. 3 is a similar view with the nipper in the forward position. Fig. 4 is a similar view with the nipper about midway the return or backward movement. Fig. 5 is a fragmentary view indicating the nipper having just started in its backward movement. Fig. 6 is a plan view of the spring. Fig. 7 is a section on line 7—7 of Fig. 3. Fig. 8 is a detail of the catch and assembled parts.

Similar numerals refer to similar parts throughout the several views.

To the rod 10, which is connected with the stationary framework of the machine, is secured the spring 8, the normal conformation of which is clearly shown in Figs. 1 and 6. The sleeve 15 is substantially similar to sleeve 40 of my said patent above referred to, and is adjustably secured to the reciprocating rod 16 which is substantially similar to rod 34 of said patent. To sleeve 15 is pivotally connected at 11, the latching member 9 provided with a shoulder or catch 12 and the wheel 13 at its lower end, and the extension 14 at its upper end. To the upper or movable element 17 of the nipper is secured the arm or finger 18, the free end of which is adapted, under certain conditions, to coöperate with the catch 12 of latching member 9.

The bar 16 is reciprocated by any suitable means, not shown, carrying with it the member which supports one element of the nipper rigidly and carries with a pivotal connection the other element 17 of the nipper which is normally controlled by the spring 20. The nipper elements are reciprocated and the pivoted element 17 is

actuated into the open position, against the tension of spring 20, by the engagement of the wheel 19, upon the inclined surfaces 21 and 22 of element 17 toward the end of its reciprocation in each direction. Referring to Fig. 1 the nipper is shown as just starting in its forward movement. It will be noted that the arm 18 has its free end slightly above the catch 12 of latching member 9. As the wheel 19 travels farther up the incline 22 the arm 18 falls down into engagement with the catch 12 as shown in Fig. 2. This coöperation between arm 18 and latching member 9 maintains the nipper open through the forward movement of the nipper until the wheel 19 encounters the opposite incline 21 to throw the nipper in the wide open position as shown in Fig. 3. Upon the return movement of the nipper, the wheel 13 of latching member 9 being in engagement with spring 8, drags the latching member 9 into the position shown in Fig. 5, so that as the wheel 19 moves along and off the incline 21, the arm 18 clears the catch 12 of latching member 9 and permits the nipper to close entirely as shown in Fig. 4. Thus the nipper remains closed until the incline 22 is reached by wheel 19 to cause the opening of said nipper jaws again. It is also to be noted that the backward movement of latching member 9, due to the engagement between wheel 13 and spring 8, is limited by the engagement of extension 14 with sleeve 15, see Figs. 4 and 5, and it will be noted that due to the curved upward incline of the spring 8 which lies in the path of travel of roller 13 considerable force is exerted by the spring 8 to maintain the extension 14 in engagement with sleeve 15. When the wheel however, has passed over the curved end 23 of spring 8 the latching member is then free to move forward due to the counterbalancing effect of extension 14 until the face of catch 12 engages with the free end of arm 18, as shown in Fig. 8. As the element 17 of the nipper is slightly elevated by the engagement of wheel 19 with incline 22, the free end of arm 18 is moved above the catch 12, which will then move by gravity actuation under the said free end of arm 18 into the position shown in Fig. 1, and as the arm is allowed to descend again it will be engaged by the catch and securely locked, to maintain the nipper open during its next forward movement as above described, and so the operation is repeated. It will be understood that as the nipper moves forward in the latched open position the latch 9, being limited in its clockwise movement, encounters the curved portion 23 of spring 8 depressing and passing over the same as indicated in Fig. 2.

What I claim is:—

1. In a sheet registering device, the com-

bination of reciprocating nipper elements, means for normally causing the elements to open at the end of their reciprocating movement in each direction, and to close during the intermediate portion of said movement, and latching means for maintaining the nipper elements open during the entire movement in one direction.

2. A reciprocating nipper, means for normally causing the opening of the nipper toward the end of its movement in each direction, and the closure of the nipper during the intermediate movement, and latch and projection means for preventing the closure of the nipper during its entire movement in one direction.

3. A reciprocating nipper and means for normally causing the opening of the nipper toward the end of its movement in each direction, and the closure of the nipper during the intermediate movement, a gravity actuated latch for engaging a movable element of the nipper, at the commencement of its movement in one direction, to prevent the closure thereof, and means for disengaging the latch from said nipper element at the beginning of its movement in the other direction.

4. A reciprocating nipper and means for normally causing the opening of the nipper toward the end of its movement in each direction, and the closure of the nipper during the intermediate movement, a latch for restraining said closure during the movement of the nipper in one direction, a spring in the path of travel of said latch adapted to yield to the latch to permit the same to pass over it in one direction while engaged with the nipper element and to cause the disengagement of the latch from the nipper element in its movement in the opposite direction.

5. A reciprocating nipper and means for normally causing the opening of the nipper toward the end of its movement in each direction, and the closure of the nipper during the intermediate movement, a counterbalanced latch for restraining said closure during the movement of the nipper in one direction, a spring in the path of travel of said latch adapted to yield to the latch to permit the same to pass over it in one direction, while engaged with the nipper element, and to cause the disengagement of the latch from the nipper element in its movement in the opposite direction.

6. In a sheet registering device, the combination of a reciprocating supporting structure, nipper elements, carried thereby, means for normally causing the opening of the nipper elements toward the end of its movement in either direction, and the closure thereof during the intermediate movement, a projection on a movable element of the nipper and a counterbalanced gravity ac-

uated latch, supported on the reciprocating structure, for cooperating with the projection, a spring projecting into the path of travel of the free end of the latch adapted
5 to disengage the latch from the projection as the parts are reciprocating in one direction and to yield and permit the free end of

the latch to pass over it when engaged with the projection when the reciprocating parts are moved in the other direction.

HOWARD K. KING.

Witnesses:

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HOWARD S. OKIE.