March 1, 1932. O. J. SUNDSTRAND 1,847,316

INJECTING AND EJECTING MEANS

Filed Sept. 19, 1928

Fig. 1.

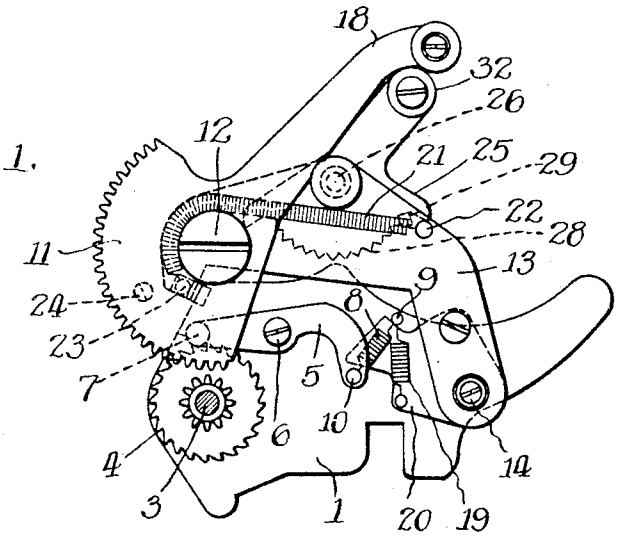



Fig. 2.

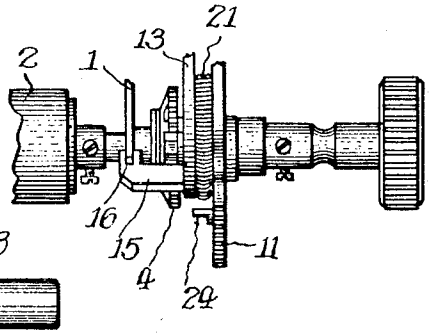



Fig. 3.

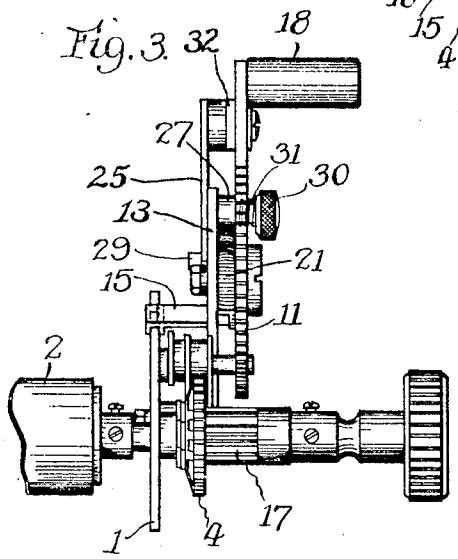
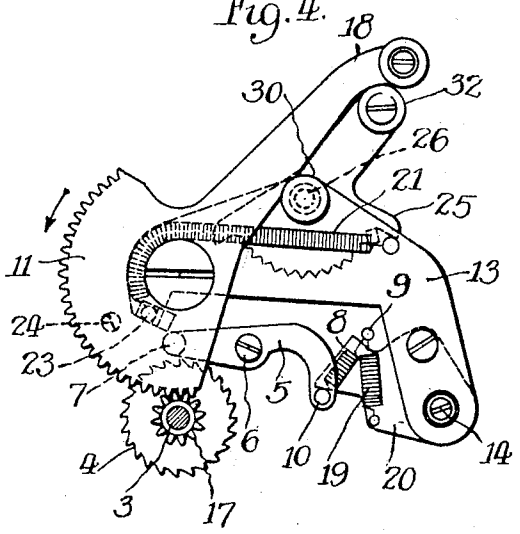



Fig. 4.




Inventor:
O. J. Sundstrand,
By Chisholm Parker & Carlson
Attys.

Patented Mar. 1, 1932

1,847,316

# UNITED STATES PATENT OFFICE

OSCAR J. SUNDSTRAND, OF ROCKFORD, ILLINOIS, ASSIGNOR TO SUNDSTRAND CORPORATION, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE

## INJECTING AND EJECTING MEANS

Application filed September 19, 1928. Serial No. 306,861.

This invention relates to means for rapidly rotating the platen of an adding machine or the like, to feed the work-sheet into the machine or to discharge it therefrom.

To prevent unintended rotation of the platen it is usual to provide a detent engaging a toothed wheel connected to turn with the platen. One of the objects of this invention is to provide improved means for removing the detent from said wheel when the platen is to be rotated by the injecting and ejecting means, in order to eliminate noise and wear.

Another object of the invention is to provide improved means for adjustably positioning a stop to determine the maximum extent of rotation of the platen under the operation of the injecting means.

It is also an object of the invention to simplify and otherwise improve the construction of injecting and ejecting means.

In the accompanying drawings:

Figure 1 is a fragmental right-hand end elevation of a paper carriage equipped with mechanism embodying my invention.

Fig. 2 is a fragmental plan view.

Fig. 3 is a fragmental front elevation.

Fig. 4 is a view similar to Fig. 1, but showing the parts in a different position.

The paper carriage may be of any ordinary or preferred construction. 1 indicates one of the end plates of the carriage. 2 is the platen, and 3 the platen shaft. A toothed wheel 4 is connected to the shaft 3 in any preferred way. This wheel may be a part of the usual line-space mechanism. A detent lever 5 is pivoted on the end plate 1 at 6, the forward extending arm of said lever having a roller 7 arranged to engage the teeth of the wheel 4. A spring 8 is anchored to a pin 9 on the end plate 1 and is attached to a pin 10 on the rear arm of the lever 5, said spring normally holding the roller 7 in contact with the wheel.

The means for rapidly rotating the platen to inject or eject the paper comprises a segment 11 pivotally mounted at 12 on the forward end of a lever 13. The rear end of the lever 13 is pivoted to the end plate 1 at a point 14 rearwardly of the platen, and its forward end extends to a point above the platen shaft 3. To assist in holding the lever 13 against lateral displacement, there is fixed to the forward end of said lever a stud 15 having a groove 16 to receive the forward edge of the end plate 1. As the lever 13 is swung on its pivot, the grooved stud 15 slides along the forward edge of the plate 1. The segment 11 is arranged to engage a pinion 17 on the platen shaft 3. Rigid with the segment 11 is a handle 18 that extends upwardly and rearwardly. The segment 11 is normally held up out of mesh with the pinion 17 by means of a spring 19, one end of which is anchored to the pin 9 on the end plate 1, and the other end of which is attached to an arm 20 which is rigidly connected to the lever 13. Normally the spring 19 holds the arm 20 against the pin 9, as shown in Fig. 1. The forward end of the arm 20 overlies the pin 10, consequently when the lever 13 is depressed through the pressure exerted as the operator pulls the handle 18 forward and down, the arm 20 acts on the pin 10 to tilt the lever 5 so as to raise the roll 7 out of engagement with the wheel 4.

When the operator releases the handle 18, the latter is swung back to its normal position by means such as a coiled spring 21. The rear end of the spring 21 is anchored to the lever 13 at 22. Its forward portion extends partially around the hub of the segment 11 and is attached to a pin 23 on the segment.

Rotation of the segment in the direction of the arrow in Fig. 4 is limited by contact of a stud 24 on the segment with the lower edge of the lever 13. Rotation in the opposite direction is limited by contact of the handle 18 with an adjustable stop. Said stop comprises a plate 25 having a pivot 26 which is

rotatable and longitudinally slidable in a bearing 27 on the lever 13. The lower edge of the plate 25 has a series of notches 28 to receive an angular stud 29 on the lever 13, said series of notches being concentric with the pivot 26. The pivot 26 is provided with a head 30 which may be grasped to push the plate 25 laterally away from the lever 13 until the notched edge of the plate is clear of the stud 29, after which the plate may be turned to bring any desired notch into register with the stud. An expansive coiled spring 31 located between the head 30 and the bearing 27 normally holds the plate 25 against the side of the lever 13, one of the notches in said plate being then in engagement with the stud 29. On the plate 25 is a rubber-covered projection 32 against which the handle 18 is normally held by the spring 21.

It will be seen that by exerting a forward and downward pull on the handle 18, the segment 11 will engage and rotate the pinion 17 and thus turn the platen rapidly in the forward direction to inject or eject the paper. The platen may also be turned in the reverse direction, if desired, to adjust the paper, by turning the handle rearwardly while holding the segment in mesh with the pinion.

When the segment 11 is in use, the detent roller 7 is out of engagement with the wheel 4, thus eliminating wear and noise, and lessening resistance to the turning of the platen.

The length of the stroke of the segment may be regulated by adjusting the stop plate 25.

I claim as my invention:

1. The combination of a paper carriage, a platen rotatably mounted therein, a lever pivoted on the carriage, a gear segment pivoted on the lever, a pinion connected to the platen and arranged to be engaged by the segment, a spring normally holding the lever in such position that the segment is out of mesh with the pinion, a handle for rotating the segment in one direction, a spring for rotating the segment in the opposite direction, a plate pivoted on the lever and carrying a stop to limit the action of the second spring, said plate having a series of notches concentric with the pivot of said plate, a stud on the lever adapted to engage any of said notches, said plate being laterally movable to disengage the plate from the stud, and a spring normally holding the plate in engagement with the stud.

2. The combination of a paper carriage, a platen rotatably mounted therein, a lever pivoted on the carriage, a gear segment pivoted on the lever, a pinion connected to the platen and arranged to be engaged by the segment, a spring normally holding the lever elevated with the segment out of mesh with the pinion, a handle rigidly connected to the segment for rotating the segment in one direction, a spring for rotating the segment in the opposite direction, a toothed wheel connected to turn with the platen, a lever pivoted on the paper carriage and having a roller arranged to engage said wheel, a spring normally holding the second mentioned lever with the roller in engagement with said wheel, and an arm connected to the first lever and arranged to engage the second lever when the first lever is depressed to disengage the roller from said wheel.

In testimony whereof, I have hereunto affixed my signature.

OSCAR J. SUNDSTRAND.