

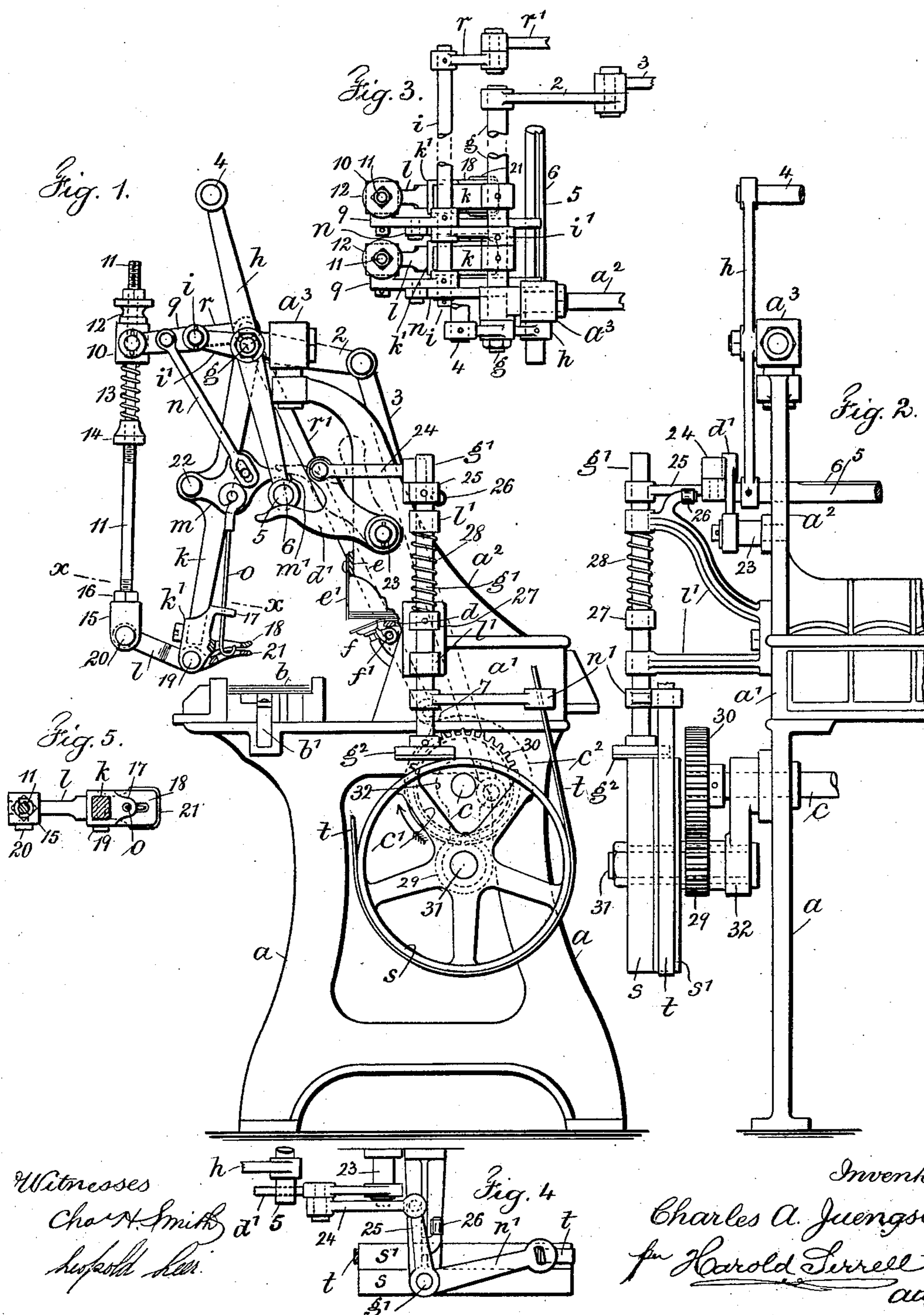
No. 763,673.

PATENTED JUNE 28, 1904.

C. A. JUENGST.
STOP MECHANISM.

APPLICATION FILED JAN. 18, 1902.

NO MODEL.



UNITED STATES PATENT OFFICE.

CHARLES A. JUENGST, OF CROTON FALLS, NEW YORK.

STOP MECHANISM.

SPECIFICATION forming part of Letters Patent No. 763,673, dated June 28, 1904.

Original application filed July 18, 1900, Serial No. 24,017. Divided and this application filed January 18, 1902. Serial No. 90,269. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. JUENGST, a citizen of the United States, residing at Croton Falls, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Stop Mechanism, of which the following is a specification.

My invention relates to devices for gathering signatures and sheets from superimposed piles; and the object of my invention is to be able to detect when the devices miss or do not engage a signature or sheet and with such detection stop the machine.

In carrying out my invention I provide a series of pivoted gripper devices with gripper-fingers which are moved toward and from the pile of signatures or sheets. These devices are adjustable for the thickness of signatures or sheets, and I provide a device supported by and operating automatically with the movement of the gripper devices, the inert position of which is maintained by the presence in the grippers of a signature or sheet and the operation of which is made effective by the absence of a signature or sheet for the engagement and operation of a series of devices which apply a brake and stop the machine.

This application is a division of an application for Letters Patent for an improvement in signature-gathering machines, filed July 18, 1900, Serial No. 24,017.

In the drawings, Figure 1 is an end elevation of a machine embodying my improvements with the parts in the position assumed thereby at the stopping of the movement of the machine. Fig. 2 is an elevation at the end of the machine and at right angles to the parts, Fig. 1. Fig. 3 is a plan of the pivoted gripper-arm devices, the shafts, and parts associated therewith. Fig. 4 is a plan of parts shown in Fig. 1 directly effective for stopping the machine, while Fig. 5 is a sectional plan at the line *x x* of Fig. 1.

a represents the base-frame of the machine, *a'* a bracket-frame thereon, and *a''* a second bracket-frame connected to the bracket-frame *a'* and rising therefrom for the support of the shafts and the gripper-arm devices. At the

upper end of the bracket-frame *a''* is a head-bearing *a'''*.

b represents the signatures or sheets; *b'*, a conveyer device upon which they are deposited and by which they are moved along.

c is a main shaft in suitable bearings in the base-frame *a*; *c'*, a disk on the shaft *c* for effecting the swinging of the grippers; *c''*, a cam on said shaft for opening and closing the grippers.

d is a support for the superimposed pile of signatures or sheets; *e*, a bar secured to the bracket-frame *a''* and to which is connected a stop-plate *e'*, coming against the advancing ends of the signatures or sheets.

f is a pneumatic sucker, and *f'* a shaft upon which the same is pivotally mounted and swings.

g represents an oscillating shaft pivotally connected to the head-bearing *a'''*. A crank-arm 2 is connected to the shaft *g*, and therefrom a connecting-rod 3 extends to a pivotal connection with the disk *c'* for oscillating the shaft *g* with the rotation of the shaft *c*. A shaft *i* runs parallel with the shaft *g*, and it is supported from the shaft *g* by the bracket-arms *i'*. This shaft *i* has connected to it a crank-arm *r*, and from the free end of said crank-arm a rod *r'* extends to the cam *c''*, the movement of which effects a swinging movement of the shaft *i* and the parts connected thereto. One or more brackets 9 are mounted upon the shaft *i*. Their free ends are pivotally connected to sleeves 10. Rods 11 pass freely through the sleeves 10. Their upper ends are threaded and provided with heads 12, which screw on the upper threaded ends of said rods, there being clamping-nuts above the heads. Nuts 14 screw upon the threaded portions of the rods 11, and between these nuts and the sleeves 10 there are helical springs 13 around the rods 11. These springs are under tension, so as to hold the heads 12 tightly against the upper surfaces of the sleeves 10. These nuts may be moved along the rods 11 to apply more or less tension to the springs 13, and the heads 12 may be moved more or less along the rods 11 to change the adjusted relation of the rods 11 to the sleeves

10. The lower ends of the rods 11 are threaded, and each rod screws into a head 15, there being a nut 16 for clamping the position of the parts with reference to one another.

5 Two or more gripper-arms k are secured to the oscillating shaft g . The lower ends of the gripper-arms are provided with heads k' . Each head is provided with a guide 17, with a stationary finger 18 at its lower end, and
10 with a pivot-pin 19. Associated with each fixed gripper-finger 18 is a movable gripper-finger 21 at the forward end of a gripper-arm l , which is pivoted to the gripper-arm k by the pivot-pin 19 and which is also con-
15 nected to the rod 11 at the pivot-pin 20. The parts herein described with special reference to the rod 11 and the parts associated therewith provide for securing an adjustable relation of the fixed gripper-finger 18 and the
20 movable gripper-finger 21 with reference to one another for the thickness of signatures or sheets to be operated upon, and this subject-matter is especially described and illustrated in my copending application, Serial No. 90,267,
25 filed January 18, 1902, and while the same is herein illustrated and described it is only accessory to the main features of the present invention for the purpose of illustrating a fully-operative device.

30 $h h$ represent double radial arms with hub-centers through which the shaft g passes and to which these arms are secured and with hub ends for bars 4 5, which pass through the same the length of the machine, the bar 5 being pro-
35 vided with a groove 6 in its upper surface, as shown. Stop-arms m are each connected by a pivot-pin 22 to a gripper-arm k . The free end of each stop-arm m is provided with a hook m' , and a link n is at one end pivotally
40 connected to a bracket-arm 9 and at its lower end loosely pivoted to the arm m . Each gripper-arm k and stop-arm m is provided with a detector-rod o at its upper end pivotally connected to the stop-arm m and at its lower end
45 passing through the guide 17 and provided with a hook, which hook is in slots formed in the fixed gripper-finger 18 and movable gripper-finger 21. The stop-arms m and the parts associated therewith move with the gripper-
50 arms k , and the hooks m' of the arms are adapted to engage the groove 6 of the arm 5 when the grippers have failed to engage a signature or sheet.

On one end bracket-frame a^2 of the machine
55 there is a pivot 23, and a yoke-bar d' is mounted thereon and adapted to swing. Fig. 1 of the drawings illustrates the peculiar form of this yoke-bar. From the upper member of this yoke-bar there extends a link 24, pivotally
60 connected thereto at one end and at its other end loosely pivoted to the free end of a crank-arm 25, secured on the upper end of a vertical rod g' . This vertical rod g' is mounted in bearings at the respective ends of a two-arm
65 bracket l' , secured to the bracket-frames $a' a^2$

of the machine. On this vertical rod there is a sleeve 27 and around the rod a spring 28 between the sleeve 27 and the upper bearing of the bracket-arm, the function of which spring is to press the rod g' downward with
70 force.

A roller 26 is mounted on a short spur of the bracket-arm l' , rising above the upper bearing thereof and adapted to come in contact with the crank-arm 25 in its movement. 75
Near the lower end of the vertical rod g' is a belt-shifter arm n' , through which the belt t passes. Fast and loose pulleys $s s'$ are mounted on a sleeve on an arbor 31, secured to a bracket-frame 32 of the machine, and the
80 power for operating the machine is communicated by the belt t to the fast pulley s , and the rotation of the pulley is communicated by the arbor 31, the gears 29 30, and shaft c .

At the lower end of the vertical rod g' there 85
is a brake-shoe q^2 , adapted to bear upon the surface of the fast pulley s to stop the rotation thereof. In the position shown in the drawings this shoe is bearing upon the pulley, held down by the expansive action of the
90 spring 28, and in this relation it will be noted that the crank-arm 25 is free from any contact with the roller 26 and that the grooved bar 5 is in contact with the curved portion or member of the yoke-bar d' , free from the notch
95 of the yoke-bar, with the hook m' of the stop-arm m in the groove 6 of the bar 5.

As shown in Fig. 1, the parts are in the position that they assume at the moment of stopping the machine, and this position shows not
100 only the hook m' in the groove 6 of the bar 5 and the bar 5 having moved the yoke-bar d' , but it shows the grippers 18 21 as in contact and the hook n of the detector-rod as down in the grooves of the grippers. To start the ma-
105 chine, the attendant raises the detector-rod o , swinging the stop-arm m and releasing its hook from the groove 6, and at the same time the attendant grasps the bar 4, swinging the radial double arms $h h$ and the bar 5 toward the
110 yoke-bar d' . This movement causes the bar 5 to strike the opposite member of the yoke-bar and to swing the yoke-bar upward into an initial position, which is shown by dotted lines, Fig. 1, and in which the bar 5 rests in
115 the base of the depression or groove of the yoke-bar. This swinging movement of the yoke-bar has forced the crank-arm 25 toward and caused it to ride upon the roller 26, and in so doing the vertical rod g' is raised and
120 the brake-shoe q^2 lifted clear of the fast pulley s , and simultaneous with this movement the vertical rod g' is turned, and it carries with it the belt-shifter arm n' , moving the belt t onto the fast pulley s , and thus starting
125 the machine.

With the backward-and-forward movement of the gripper-arm k' and stop-arm m and the action of the grippers with each movement in taking a signature or sheet the hook at the
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lower end of the rod *o* rests upon the upper surface of the sheet, maintaining the hook *m'* of the arm *m* in an elevated position, where it swings over clear of the grooved bar 5; but should the grippers not take a sheet and the detector-rod *o* be unsupported it will, as soon as the grippers start their return movement, descend by gravity and the forward end of the stop-arm *m* rest upon the bar 5 and its hook engage with the groove 6, the further movement of the parts bringing with them the bar 5 and arms *h h*, swinging the yoke-bar 6 and releasing the parts associated therewith from contact with the roller 26, so that the spring 28 may force down the rod *q'* and bring the brake-shoe *q''* against the fast pulley and stop the machine, at the same time shifting the belt *t* to the loose pulley.

I claim as my invention—

1. In a stop mechanism, the combination with an oscillating shaft, a gripper-arm secured thereto and swung by the movement thereof, a fixed gripper-finger and a movable gripper-finger, and means for operating the same to engage and remove a signature or sheet at a time, of a device pivoted to the gripper-arm, a device connected therewith and extending to the gripper-fingers and which devices are supported in an inert position by the presence of a signature or sheet in the gripper-fingers and are made operative by the absence of such signature or sheet, and means adapted to be engaged and operated by said devices for stopping the machine.

2. In a stop mechanism, the combination with an oscillating shaft, a gripper-arm secured thereto and swung by the movement thereof, a fixed gripper-finger and a movable gripper-finger, and means for operating the same to engage and remove a signature or sheet at a time, of a device pivoted to the gripper-arm, a device connected therewith and extending to the gripper-fingers and which devices are supported in an inert position by the presence of a signature or sheet in the gripper-fingers and are made operative by the absence of such signature or sheet, a swinging device mounted on the aforesaid oscillating shaft, manually operated in one direction and engaged and automatically operated in the opposite direction by the aforesaid devices, and other devices moved by the movement of said swinging device and a brake-shoe applied thereby in one position of the parts for stopping the machine, and means in the opposite position for holding the brake-shoe elevated.

3. In a stop mechanism, the combination with an oscillating shaft, a gripper-arm secured thereto and swung by the movement thereof, a fixed gripper-finger and a movable gripper-finger, and means for operating the same to engage and remove a signature or sheet at a time, of a device pivoted to the gripper-arm, a device connected therewith and extending to the gripper-fingers and which devices

are supported in an inert position by the presence of a signature or sheet in the gripper-fingers and are made operative by the absence of such signature or sheet, a swinging device mounted on the aforesaid oscillating shaft manually operated in one direction and engaged and automatically operated in the opposite direction by the aforesaid device, a yoke-bar pivoted to the frame of the machine, a vertical rod spring-actuated in a downward direction, a brake-shoe at its lower end adapted to contact with the fast pulley and stop the machine, a link and crank-arm between the upper end of said vertical rod and a member of the said yoke-bar connecting said parts, a means with the movement of said parts for raising the vertical rod against the action of the spring, and a belt-shifter arm connected to the vertical rod and adapted simultaneously to move the power-belt.

4. In a stop mechanism, the combination with an oscillating shaft, a gripper-arm secured thereto and swung by the movement thereof, a fixed gripper-finger and a movable gripper-finger, and means for operating the same to engage and remove a signature or sheet at a time, of a stop-arm pivoted to the gripper-arm and at its free end carrying a hook, a detector-rod pivotally connected to the stop-arm and having a hook at its lower end in grooves of the gripper-fingers and associated therewith, and means adapted to be engaged and operated by said devices for stopping the machine.

5. In a stop mechanism, the combination with an oscillating shaft, a gripper-arm secured thereto and swung by the movement thereof, a fixed gripper-finger and a movable gripper-finger, and means for operating the same to engage and remove a signature or sheet at a time, of a stop-arm pivoted to the gripper-arm and at its free end carrying a hook, a detector-rod pivotally connected to the stop-arm and having a hook at its lower end in grooves of the gripper-fingers and associated therewith, a swinging device secured to and mounted upon the oscillating shaft, a bar 4 at one end thereof and a bar 5 at the opposite end, the said bar 5 having a groove 6 adapted to be engaged by the aforesaid hook of the stop-arm *m*, a yoke-bar *d'* pivotally mounted upon the frame of the machine and adapted to be in contact with and to be operated by the bar 5 of the pivotally-mounted device, whereby in the initial and inactive position the said bar 5 rests in the base of the groove of the yoke-bar and in the active position against one of the arms thereof, a brake-shoe, and means spring-controlled in one direction and positively moved in the opposite direction with the movement of the yoke-bar for applying the brake to stop the machine.

6. In a stop mechanism, the combination with an oscillating shaft, a gripper-arm secured thereto and swung by the movement

thereof, a fixed gripper-finger and a movable gripper-finger, and means for operating the same to engage and remove a signature or sheet at a time, of a stop-arm pivoted to the gripper-arm and at its free end carrying a hook, a detector-rod pivotally connected to the stop-arm and having a hook at its lower end in grooves of the gripper-fingers and associated therewith, a swinging device secured to and mounted upon the oscillating shaft, a bar 4 at one end thereof and a bar 5 at the opposite end, the said bar 5 having a groove 6 adapted to be engaged by the aforesaid hook of the stop-arm *m*, a yoke-bar *d'* pivotally mounted upon the frame of the machine and adapted to be in contact with and to be operated by the bar 5 of the pivotally-mounted device, whereby in the initial and inactive position the said bar 5 rests in the base of the groove of the yoke-bar and in the active posi-

tion against one of the arms thereof, a vertically-movable rod *g'*, a spring for normally holding the rod down, a brake-shoe at the lower end of said rod, a crank-arm at the upper end of said rod and a link therefrom to a pivotal connection with one arm of the said yoke-bar, means acting with the movement of the parts in one direction for raising the vertical rod and the brake-shoe, and a belt-shifter arm connected with the said vertical rod and turned with the turning movement thereof to shift the belt, substantially as set forth.

Signed at Croton Falls, in the county of Westchester and State of New York, this 22d day of August, A. D. 1901.

CHARLES A. JUENGST.

Witnesses:

E. S. THOMAS,

L. HENSEL.