

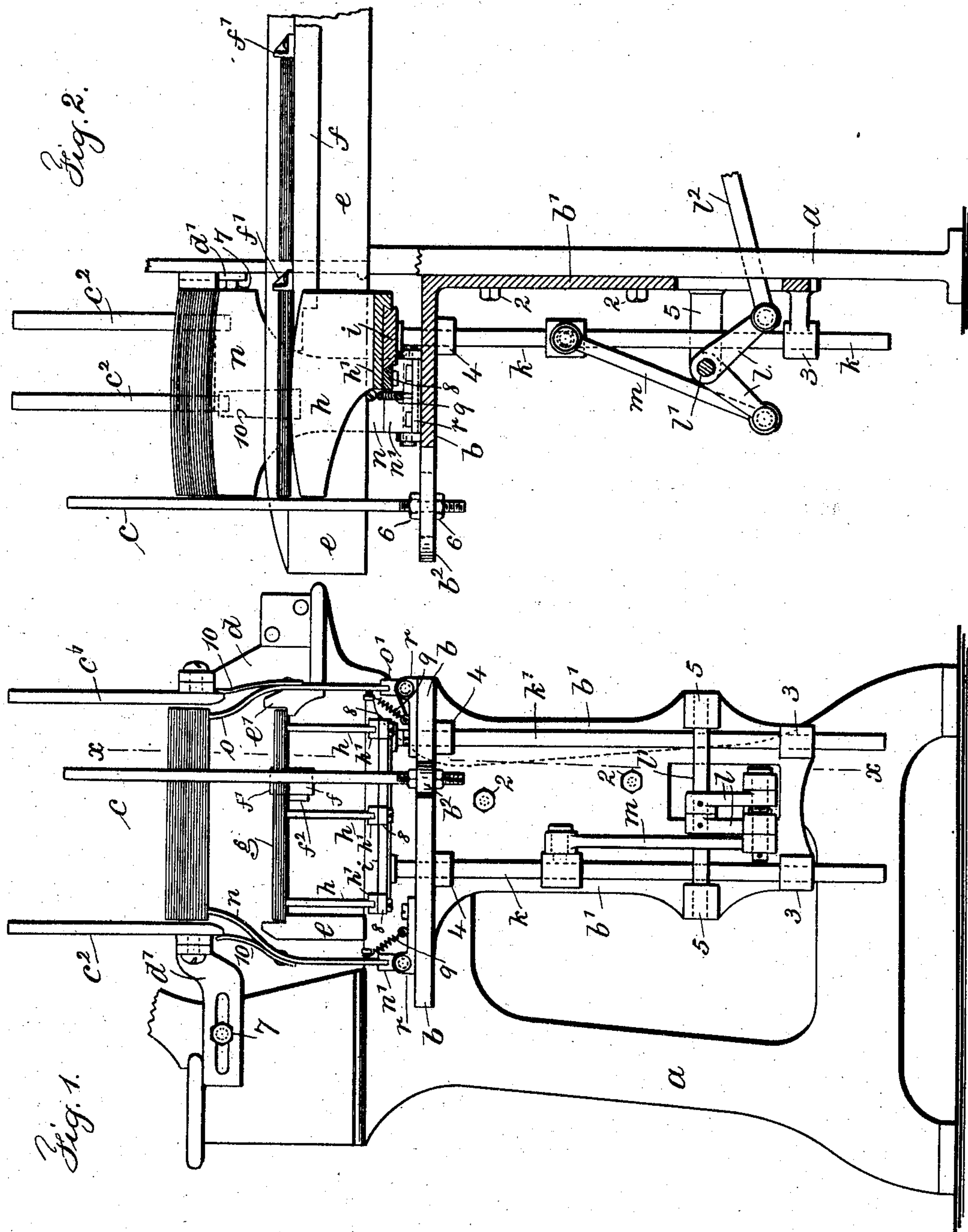
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C. A. JUENGST.
SIGNATURE GATHERING MACHINE.

APPLICATION FILED JULY 18, 1900.

NO MODEL.



Witnesses

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UNITED STATES PATENT OFFICE.

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SIGNATURE-GATHERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 768,461, dated August 23, 1904.

Application filed July 18, 1900. Serial No. 24,017. (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 an Improvement in Signature-Gathering Machines, of which the following is a specification.

My invention relates to that part of signature-gathering machines where the signatures as delivered upon a carrier and superimposed are removed from the carrier, collated complete, and ready for binding or stapling as books or pamphlets; and the object of my invention is to remove the superimposed piles in succession and stack the same *en masse* to be separated as taken away at the convenience of the binder.

I provide at the end of the signature-carrier and in line therewith a series of lifter-blades vertically movable and devices timed with the movement of the carrier for successively removing the superimposed piles of signatures or sheets and raising them to and upon supporting devices above the line of travel of the carrier, which group of signatures or sheets as lifted comes beneath the stack of signatures or sheets to increase the mass upon the same common supports. These parts are yielding and preferably spring-controlled. The lifting-blades are connected to a common support upon which they are adjustable and the vertical movement of the lifting-blades and common support is effected in any desired manner.

In the drawings, Figure 1 is an end elevation of a frame and the devices of my improvement. Fig. 2 is a vertical section and partial elevation on the dotted lines *xx* of Fig. 1.

The frame *a* is one of a series employed in a signature-gathering machine and specifically the end frame of the machine.

b represents a bed-plate, and *b'* an upright plate, the two parts forming a bracket secured by bolts 2 to the outer surface of the frame *a*. This bracket structure is provided with bearings 3 4, preferably in pairs, and with a pair of bracket-arms 5. The bed-plate *b* of the bracket structure is provided with

an extension or arm *b²*, slotted to receive the guide-post *c*, secured to the bed-plate of the bracket by the nuts 6, which preferably comes at opposite sides of the extension or arm *b²*.

I provide other guide-posts *c' c²* in pairs, the posts *c'* being connected to a bracket-arm or support *d* upon the frame *a*, and the guide-posts *c²* connected to a movable arm *d'*, which is adjustably secured to the frame *a* by a bolt 7. (See Fig. 1.) The guide-posts in pairs *c'* and *c²* come at opposite sides of the signatures or sheets and in the same vertical planes with the line of travel of the signatures or sheets as superimposed upon the carrier, the same really coming at opposite sides of the stack of superimposed signatures or sheets above the line of travel of the carrier, the guide-post *c* coming at the end of the line of travel of the signatures or sheets upon the carrier and also at the end or outside of the signatures or sheets in the stack upon the higher plane.

e e' represent offset bars forming slides of the signature-raceway, and *f* is a signature-carrier, the same having bracket parts *f'* thereon at intervals and transversely of the carrier for moving the superimposed signatures or sheets along by a movement imparted to the carrier. The movement of the carrier, the devices for actuating the same, and the manner of feeding along the signatures or sheets thereby form no part of my present invention.

g represents the superimposed signatures or sheets. These at their opposite edges lie upon the offset bars *e e'*, which form guides therefor, and at an intermediate point upon the signature-carrier *f* and upon a fixed longitudinal bar *f²*, so that they are supported not only at the edges, but at the intermediate point, and are thus kept in form. I employ a series of lifter-blades *h*, preferably of the form shown in Fig. 2—that is, with a convex curved upper edge, over which the group of signatures or sheets on the carrier readily moves until the signatures or sheets come up against the guide-post *c*. Each of these lifter-blades is provided with a base-bar *h'*, the base-bar being undercut at the right-hand side

(see Fig. 2) and at the left-hand side having a bar 8 with an undercut edge, which parts taken in their combined relation are adapted to engage and be clamped to the platform *i*.

5 This platform has opposite inclined edges to fit the undercut edges of the said base-bars and bar 8, and when the nut clamping the bar 8 is loosened to slightly free the bar the said lifter-blades can be moved longitudinally of the platform *i*, so as to adjust the same to the
10 desired position.

k k' are rods parallel, set vertically and passing through the bearings 3 4 of the upright plate *b'* of the bracket. The upper ends of
15 these rods *k k'* are secured to the under surface of the platform *i*. Adjacent cranks *l* on a shaft *l'* in the brackets 5 as bearings together form a bell-crank lever, to one end of which the connecting-rod *l²* is pivotally secured. To
20 the other end of this bell-crank lever one end of a link *m* is connected, the other end thereof being pivotally mounted to a block or sleeve of the rod *k*. The connecting-rod *l²* is actuated by any suitable mechanism or power to
25 impart a swinging movement to the bell-crank-lever device *l* and shaft *l'*. It will be seen that this movement actuates the link *m* and raises and lowers the rods *k k'* and the platform *i*, imparting to the lifter-blades *h* a
30 vertical motion.

n o are yielding support-plates, shown as of curved form, connected at their lower ends to hinge-blocks *n' o'*, pivoted to the hinge-plates *r*, which in turn are secured to the upper surface of the bed-plate *b* of the bracket structure, and I employ springs 9, at one end connected to the hinge-plates *r* and at their other ends to pins in the yielding support-plates *n o*. These plates *n o* are preferably formed
40 with stop-blades 10, which come outside of the lower ends of the pairs of guide-posts *c' c²*, while the upper ends of the support-plates *n o* rise preferably higher than the upper ends of the blades 10 and come between the pairs
45 of guide-posts *c' c²* to support the stack of superimposed signatures or sheets which rest on the upper ends of said plates *n o*. I prefer to give a slight curve to the upper edge of the plates *n o* similar to the curve of the upper edge of the lifter-blades *h*, the function
50 of the springs 9 being to maintain the support-plates *n o* in an initial position, in which the upper ends of the stop-blades 10 come against the outer surfaces of the pairs of
55 guide-posts *c' c²*.

In the operation of the device and as the superimposed signatures or sheets are brought along progressively by the carrier *f* an upward movement is imparted by the connecting-rod *l²*, shaft *l'*, and bell-crank-lever device *l* to the rods *k k'*, platform *i*, and series
60 of lifter-blades *h*. These lifter-blades as they rise take with them the pile of signatures or sheets *g*, raise the same against the yielding

support-plates *n o* and the under side of the stack of signatures or sheets. In so doing they push aside the yielding support-plates *n o* and raise the stack of signatures or sheets sufficient for the support-plates *n o* to return beneath the lowermost signatures or sheets.
70 As the lifter-blades descend the signatures or sheets just raised form part of the stack and are left upon and supported by the support-plates *n o*, the series of lifter-blades *h*, the platform *i*, and the rods *k k'* descending to
75 their lowest position ready to receive upon said blades the next pile or group of superimposed signatures or sheets from the carrier with its progressive movement.

I do not herein limit myself to the precise construction of the yielding support-plates *n o*, but prefer to limit myself to forming the series of curved lifting-blades *h* and the support-plates *n* and *o* with convex curved upper edges, because thereby distinct functions are
85 performed, namely: The groups of superimposed signatures or sheets easily overrun the lifter-blades as advanced by the carrier, and said signatures or sheets as lifted by the blades and as supported by the support-plates
90 *n* and *o* readily conform to the said curved upper edges and in so doing assume the form of a flattened arch wherein it is substantially impossible for the signatures or sheets to sag.

I claim as my invention—

1. In a signature-gathering machine, the combination with a carrier for successively delivering superimposed groups of signatures or sheets, of devices in line with the carrier having convex curved upper edges adapted to receive upon them the groups of signatures or sheets, means for raising said devices with each group of signatures or sheets and yielding spring-controlled devices in a higher plane adapted to receive and support the groups of
100 signatures or sheets *en masse* as successively raised and stacked.

2. In a signature-gathering machine, the combination with a carrier for successively delivering superimposed groups of signatures or sheets, of a series of lifter-blades in line with the carrier having convex curved upper edges adapted to receive upon them the groups of signatures or sheets, means for raising said lifter-blades with each group of signatures or sheets and other devices in a higher plane adapted to receive and support the groups of signatures or sheets *en masse* as successively raised and stacked.

3. In a signature-gathering machine, the combination with a carrier for successively delivering superimposed groups of signatures or sheets, of a series of lifter-blades in line with the carrier having convex curved upper edges adapted to receive upon them the groups of signatures or sheets, means for raising said lifter-blades with each group of signatures or sheets and yielding spring-controlled devices
120 125

in a higher plane adapted to receive and support the groups of signatures or sheets *en masse*, as successively raised and stacked.

4. In a signature-gathering machine, the combination with a carrier for successively delivering superimposed groups of signatures or sheets, of devices in line with the carrier adapted to receive thereon each group of signatures or sheets, a platform to which said devices are adjustably secured, vertically-movable rods to which said platform is connected, a shaft, a connecting-rod, a link and a bell-crank-lever device for vertically moving the rods, platform and said devices with each group of signatures or sheets, and other devices in a higher plane adapted to receive and support the groups of signatures or sheets *en masse*, as successively raised and stacked.

5. In a signature-gathering machine, the combination with a carrier for successively delivering superimposed groups of signatures or sheets, of a series of lifter-blades in line with the carrier adapted to receive thereon each group of signatures or sheets, a platform to which said lifter-blades are adjustably secured, vertically-movable rods to which said platform is connected, a shaft, a connecting-rod, a link and a bell-crank-lever device for vertically moving the rods, platform and said lifter-blades with each group of signatures or sheets, and other devices in a higher plane adapted to receive and support the groups of signatures or sheets, *en masse*, as successively raised and stacked.

6. In a signature-gathering machine, the combination with a carrier for successively delivering superimposed groups of signatures or sheets, of devices in line with the carrier adapted to receive thereon each group of signatures or sheets, a platform to which said devices are adjustably secured, vertically-movable rods to which said platform is connected, a shaft, a connecting-rod, a link and a bell-crank-lever device for vertically moving the rods, platform and said devices with each group of signatures or sheets, yielding support-plates pivotally mounted and spring-controlled with their upper edges in a higher plane and adapted to receive and support the groups of signatures or sheets, *en masse*, as successively raised and stacked.

7. In a signature-gathering machine, the combination with a carrier for successively delivering superimposed groups of signatures or sheets, of a series of lifter-blades in line with the carrier adapted to receive thereon each group of signatures or sheets, a platform to which said lifter-blades are adjustably secured, vertically-movable rods to which said platform is connected, a shaft, a connecting-rod, a link and a bell-crank-lever device for vertically moving the rods, platform and said lifter-blades with each group of signatures or

sheets, yielding support-plates pivotally mounted and spring-controlled with their upper edges in a higher plane and adapted to receive and support the groups of signatures or sheets, *en masse*, as successively raised and stacked.

8. In a signature-gathering machine, the combination with a carrier for successively delivering superimposed groups of signatures or sheets, offset bars *e, e'* coöperating with the carrier and forming slides to receive the opposite edges of the signatures or sheets, of a series of lifter-bars in line with the carrier adapted to receive thereon each group of signatures or sheets, means for raising the said series of lifter-bars with each group of signatures or sheets, and yielding support-plates at opposite sides of the carrier pivotally mounted and spring-controlled with their upper ends in a higher plane adapted to receive and support the groups of signatures or sheets *en masse*, as successively raised and stacked.

9. In a signature-gathering machine, the combination with an end frame, of a bracket structure comprising a bed-plate *b* and an upright and slotted plate *b'*, bearing-brackets also formed with said structure, a shaft mounted in the bearing-brackets, vertical rods passing through the bearings parallel with one another, a bell-crank-lever device mounted on said shaft, a connecting-rod to one end thereof, and a link from the opposite end thereof to a connection with one of the vertical rods, whereby a vertical up-and-down movement is imparted to the rods, a platform at the upper end of and connecting both of said rods and a series of lifter-blades parallel with one another and adjustably secured to said platform.

10. In a signature-gathering machine, the combination with an end frame, of a bracket device comprising a bed-plate *b* and an upright plate *b'* secured to the frame, hinge-plates *r* secured to the bed-plate *b* at opposite sides, hinge-blocks pivotally connected to the hinge-plates, yielding support-plates secured to the hinge-blocks and rising above the same, stops near the upper ends of said support-plates for limiting their movement in one direction, and springs for keeping the same against said limiting-stops, substantially as set forth.

11. In a signature-gathering machine, the combination with an end frame, of a bracket device comprising a bed-plate *b* and an upright plate *b'* secured to the frame, hinge-plates *r* secured to the bed-plate *b* at opposite sides, hinge-blocks pivotally connected to the hinge-plates, yielding support-plates secured to the hinge-blocks and rising above the same, and having stop-blades *10* secured thereto, limiting-stops coming between the upper ends of said plates and blades whereby the upper ends of said plates come between the limiting-

stops, and said limiting-stops also forming
guides for a stack of superimposed signatures
or sheets, a series of lifter-blades receiving
groups of signatures or sheets as delivered,
5 and means for raising said lifter-blades with
each group of signatures or sheets past the
upper ends of said support-plates, pressing
the same aside and passing by, which lifter-
blades with their downward movement leave
10 the stack of signatures or sheets upon the up-

per ends of said supporting-plates, substan-
tially as set forth.

Signed at New York city, in the county of
New York and State of New York, this 15th
day of June, A. D. 1900.

CHARLES A. JUENGST.

Witnesses:

E. T. THOMAS,

HENRY JOHNSON.