No. 656,523. Patented Aug. 21, 1900.

T. C. DEXTER.

PAPER FEEDING MACHINE.

(Application filed Aug. 5, 1898.)

(No Model.) 8 Sheets—Sheet 1.

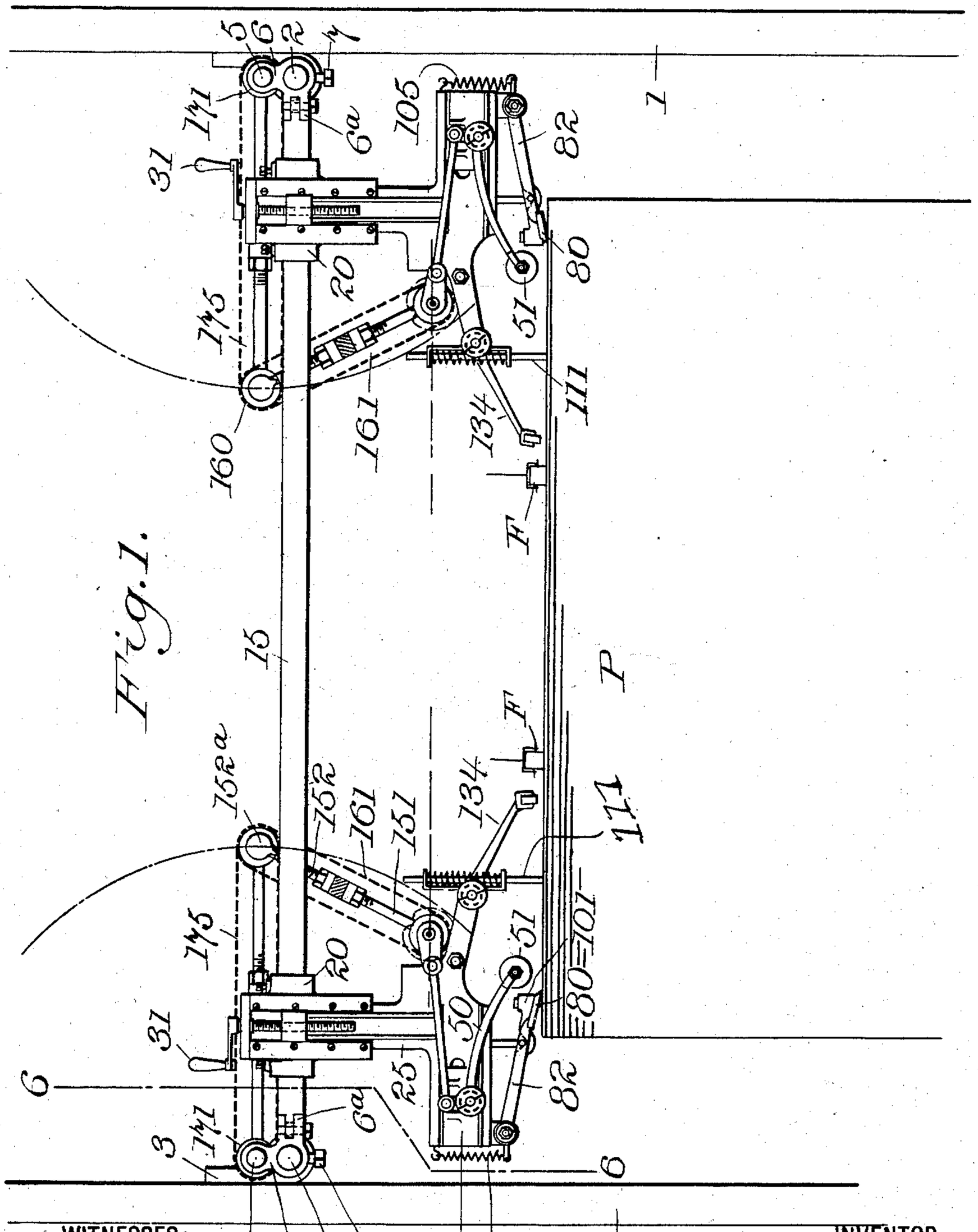

Fig. 1.

WITNESSES:

H. V. Bridgwood

H. H. Humphrey.

INVENTOR

Talbot C. Dexter

BY

Munn & Co

ATTORNEYS

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(No Model.) 8 Sheets—Sheet 2.

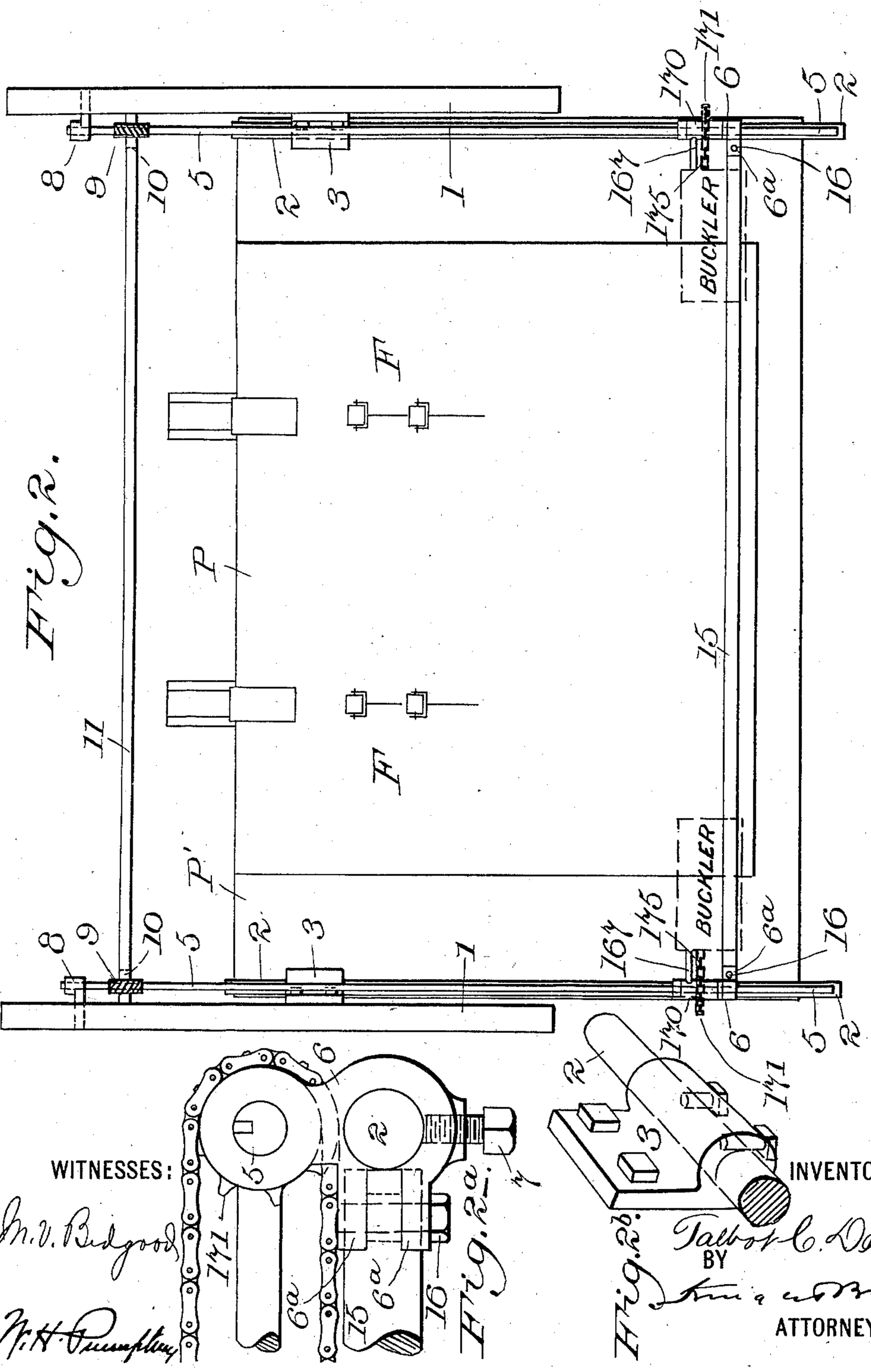

Fig. 2.

Fig. 2a.

Fig. 2b.

WITNESSES:

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W. H. Pumphrey

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No. 656,523. Patented Aug. 21, 1900.

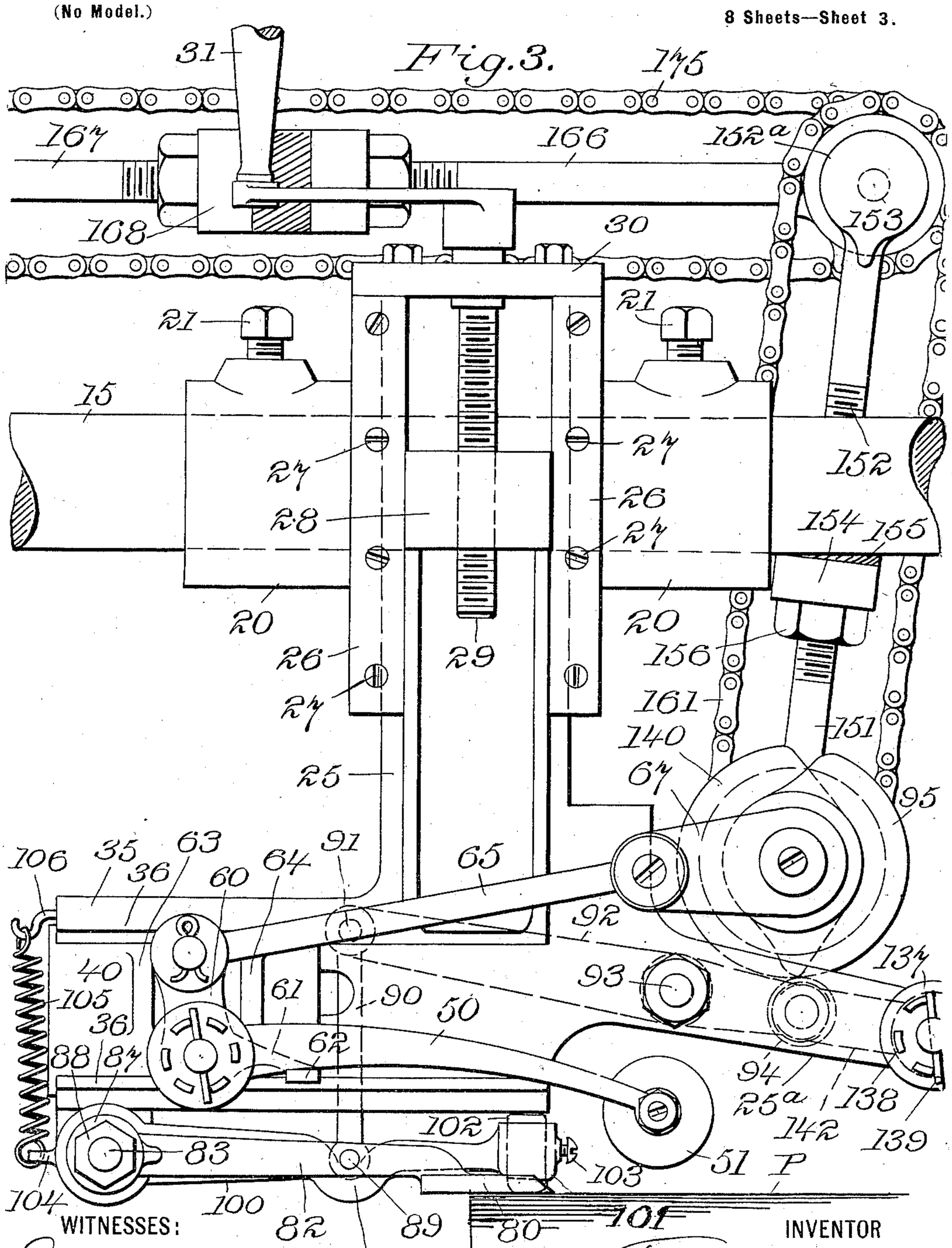
T. C. DEXTER.

PAPER FEEDING MACHINE.

(Application filed Aug. 5, 1898.)

(No Model.) 8 Sheets—Sheet 3.

Fig. 3.



WITNESSES:

H. V. Bidgood

H. N. Dunphrey.

INVENTOR

Talbot C. Dexter

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Strong & Brown

ATTORNEYS

No. 656,523. Patented Aug. 21, 1900.

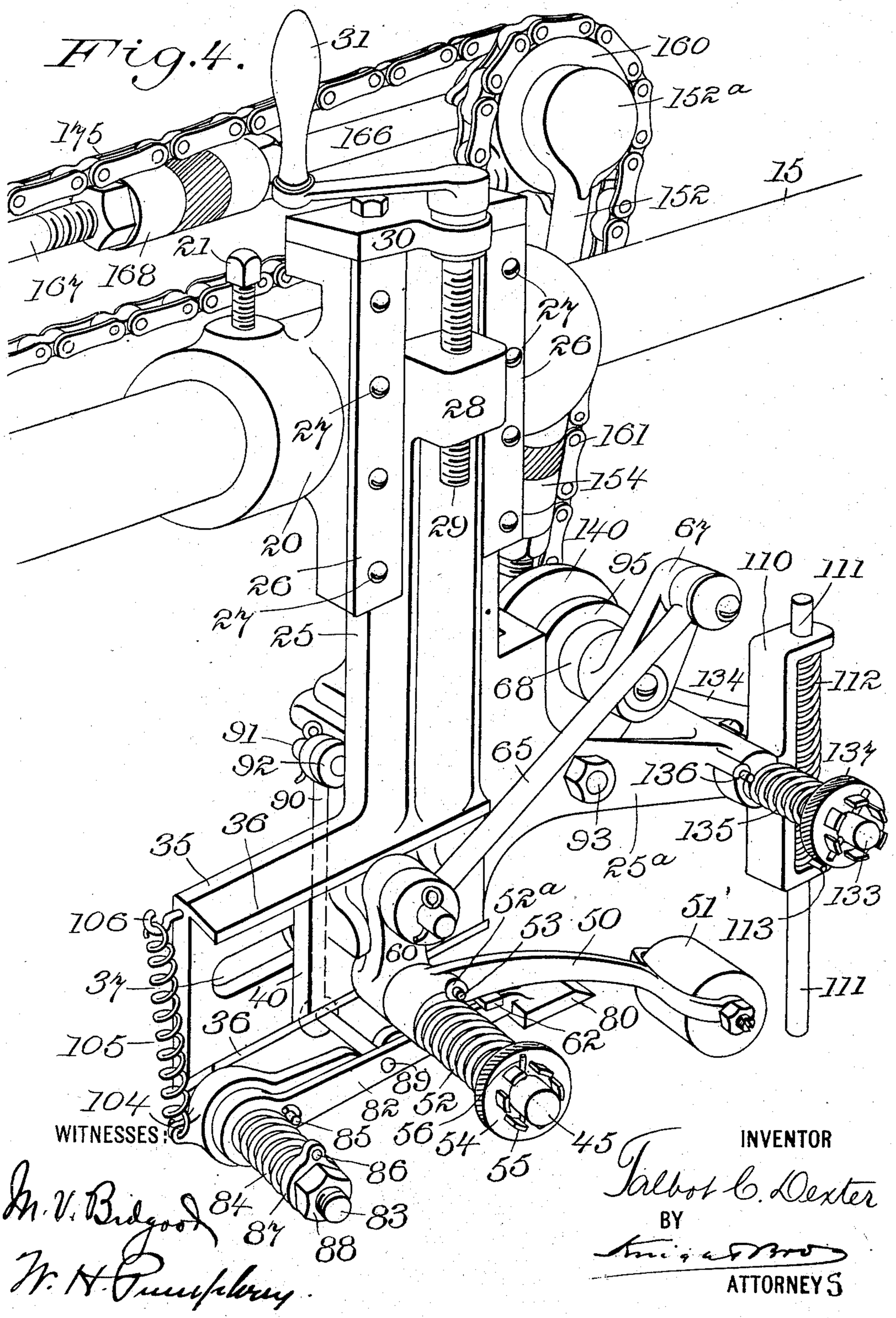
T. C. DEXTER.

PAPER FEEDING MACHINE.

(Application filed Aug. 5, 1898.)

(No Model.) 8 Sheets—Sheet 4.

Fig. 4.



WITNESSES:

H. V. Bidgood

W. H. Dumphrey.

INVENTOR

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Knight Bros

ATTORNEYS

No. 656,523. Patented Aug. 21, 1900.

T. C. DEXTER.

PAPER FEEDING MACHINE.

(Application filed Aug. 5, 1898.)

(No Model.) 8 Sheets—Sheet 5.

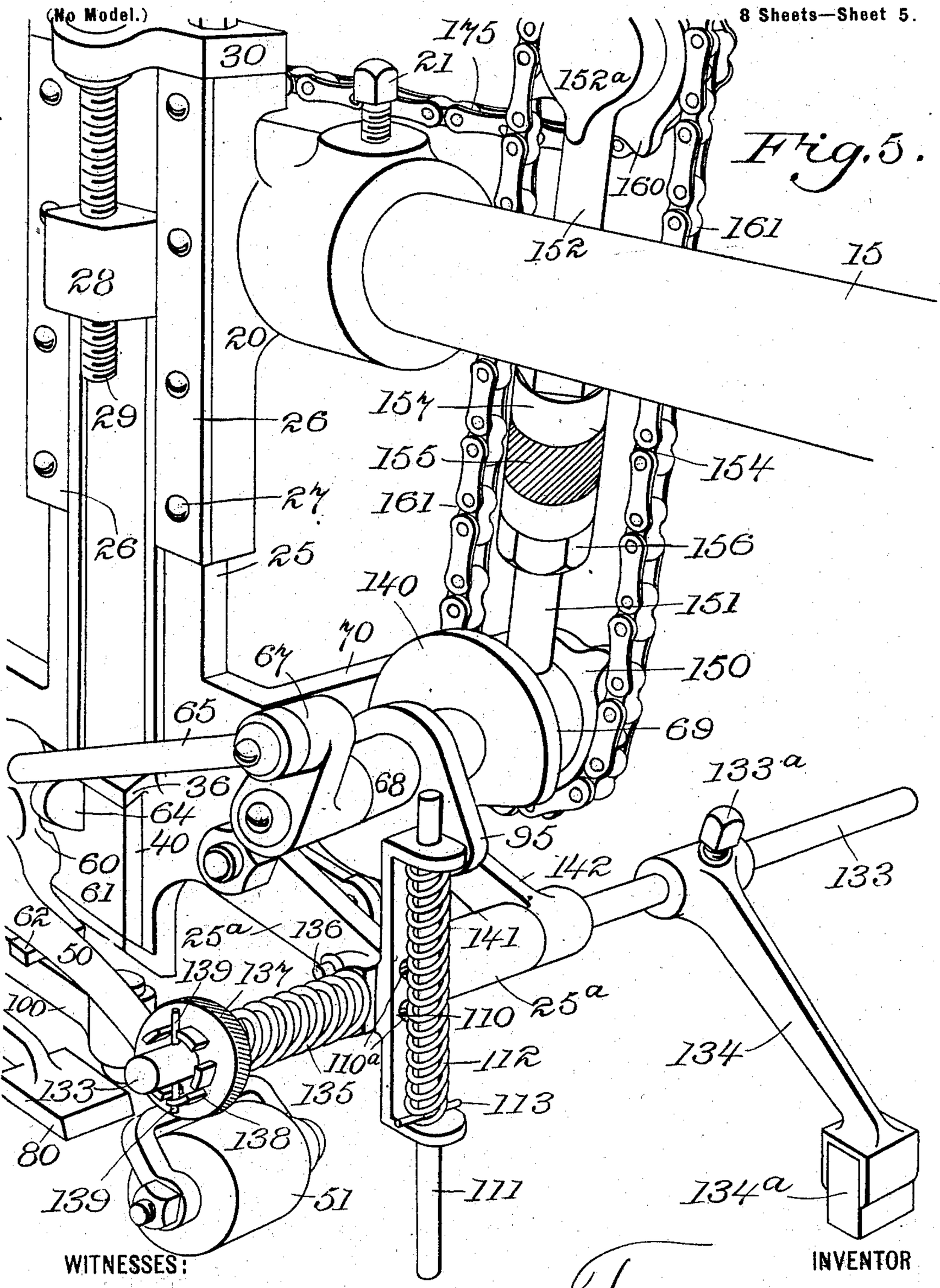


Fig. 5.

WITNESSES:

M. V. Bidgood

W. H. Dumphrey.

INVENTOR

Talbot C. Dexter

BY

Munn & Co

ATTORNEYS

No. 656,523. Patented Aug. 21, 1900.

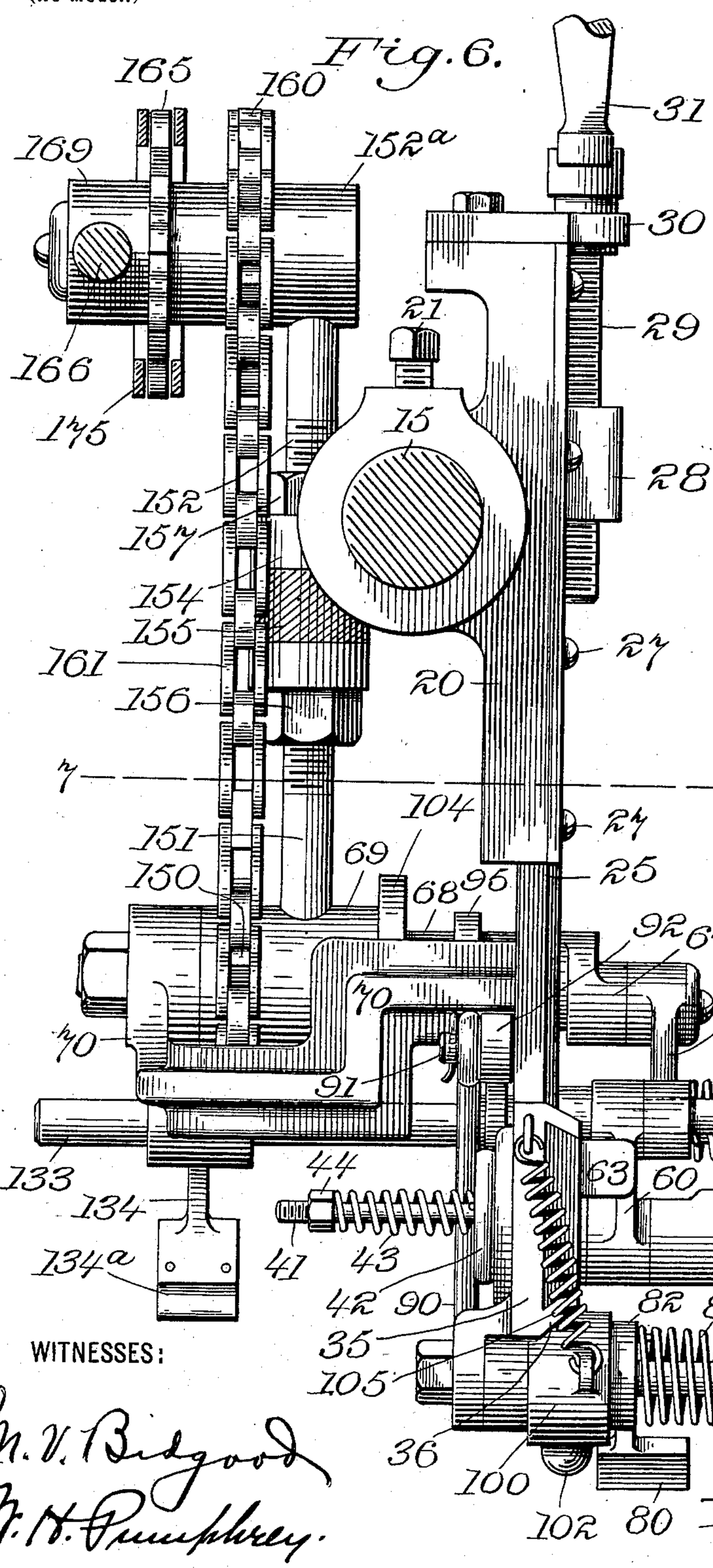
T. C. DEXTER.

PAPER FEEDING MACHINE.

(Application filed Aug. 5, 1898.)

(No Model.) 8 Sheets—Sheet 6.

Fig. 6.



WITNESSES:

H. V. Bidgood

H. B. Pumphrey.

No. 656,523. Patented Aug. 21, 1900.

T. C. DEXTER.

PAPER FEEDING MACHINE.

(Application filed Aug. 5, 1898.)

(No Model.) 8 Sheets—Sheet 7.

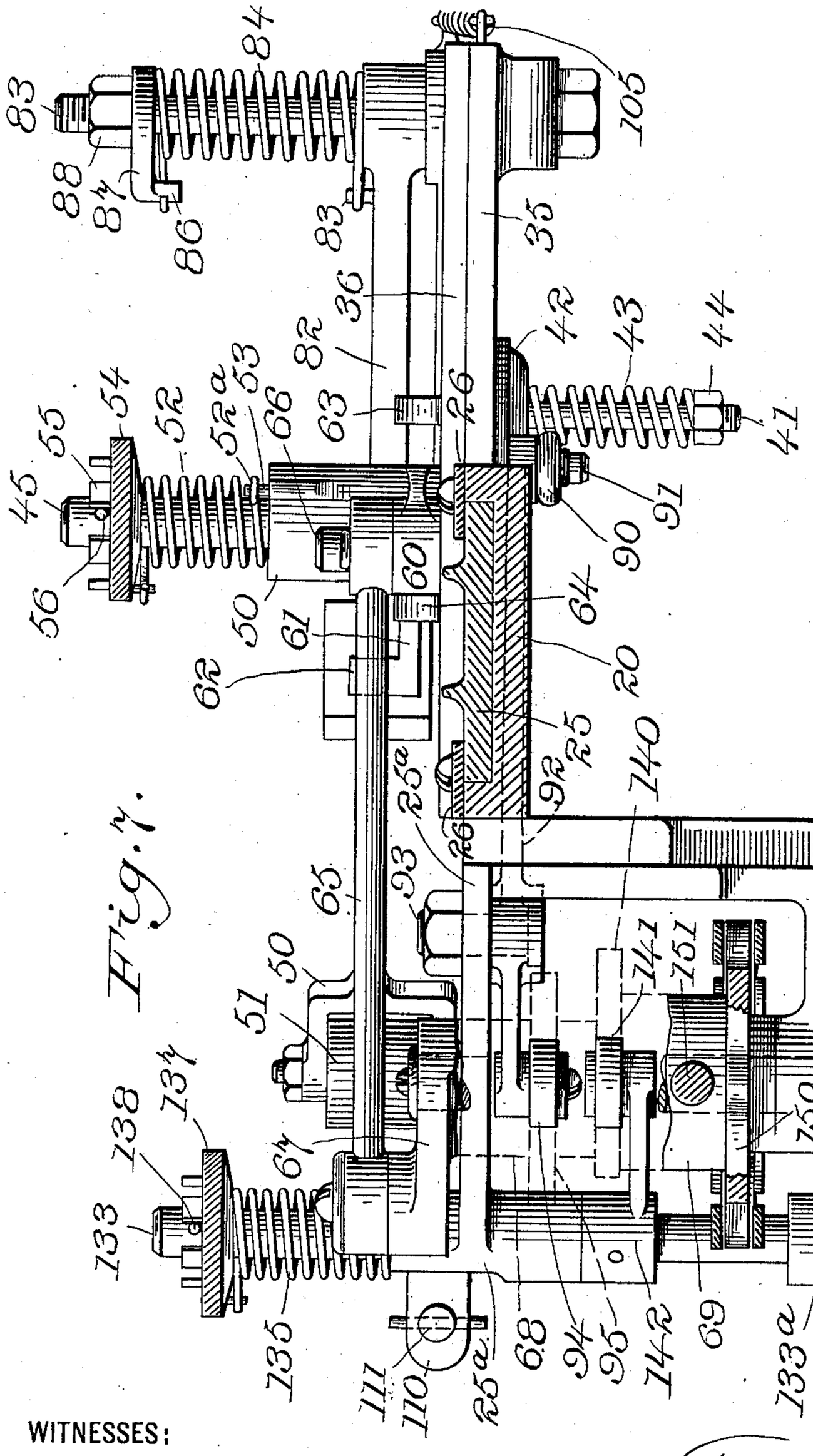


Fig. 7.

WITNESSES:

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INVENTOR

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Munn & Co

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No. 656,523. Patented Aug. 21, 1900.

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PAPER FEEDING MACHINE.

(Application filed Aug. 5, 1898.)

(No Model.) 8 Sheets—Sheet 8.

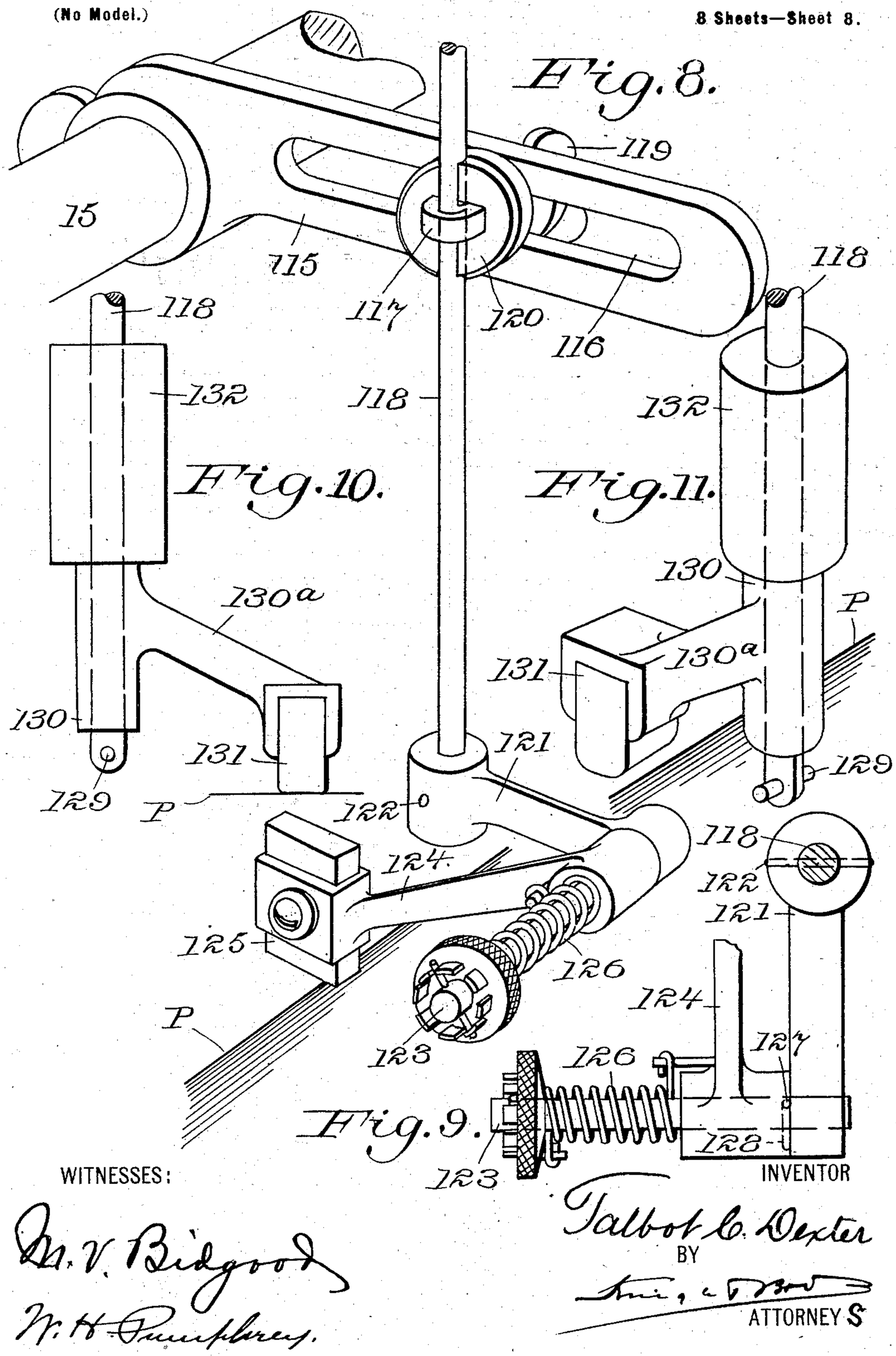

Fig. 8.

Fig. 10.

Fig. 11.

Fig. 9.

WITNESSES:

H. V. Bidgood

W. H. Dumphrey.

INVENTOR

Talbot C. Dexter

BY

Lewis & Dyer

ATTORNEYS

UNITED STATES PATENT OFFICE.

TALBOT C. DEXTER, OF PEARL RIVER, NEW YORK.

PAPER-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 656,523, dated August 21, 1900.

Application filed August 5, 1898. Serial No. 687,880. (No model.)

To all whom it may concern:

Be it known that I, TALBOT C. DEXTER, a citizen of the United States, residing at Pearl River, in the county of Rockland and State of New York, have invented certain new and useful Improvements in Paper-Feeding Machines, of which the following is a specification.

My invention relates to improvements in sheet-buckling mechanism for paper-feeding machines, my object being to improve the construction and enlarge the scope of operation of such mechanism.

The main feature in my present invention is the combination of suitable sheet-buckling mechanism with an operating-shaft and extensible driving mechanism operatively connecting the buckling mechanism with the operating-shaft and allowing for the adjustment of the buckling mechanism in the desired direction. The buckler-operating mechanism is extensible transversely and vertically and comprises, preferably, a pair of coöperating sprocket-chains supported in proper position by a pivotally-connected pair of struts or braces, which are journaled, respectively, to an operating-shaft and the buckling mechanism. One of the sprocket-chains is driven from the operating-shaft and drives the other chain, which in turn operates the buckling mechanism. Two sets of sheet-buckling mechanism are employed, as usual, and I arrange an independent extensible operating mechanism for each set, and in addition to the vertical and transverse adjustment of the buckling mechanisms allowed by the extensible driving mechanisms I prefer to have the buckling mechanisms adjustable with their operating mechanisms longitudinally of the machine.

My invention consists, further, of certain other features which will hereinafter be described in connection with the above-named important features, with particular reference to the accompanying drawings, and afterward pointed out with regard to their patentable novelty in the annexed claims.

In said drawings, Figure 1 is a rear end elevation of a paper-feeding machine, showing my improved independently-adjustable sheet-buckling mechanisms and constantly-engaging rear-end sheet-retarders applied thereto. Fig. 2 is a plan view of the mechanism shown in Fig. 1. Figs. 2^a and 2^b are detail views of parts of the structure. Fig. 3 is an enlarged detail rear elevation of the sheet-buckling mechanism shown at the left-hand side of Fig. 1. Fig. 4 is a rear perspective view of the same mechanism. Fig. 5 is another perspective view of the same mechanism looking toward the left-hand side of the machine. Fig. 6 is a sectional side elevation taken on the line 6 6 of Fig. 1, showing the parts on a larger scale. Fig. 7 is a horizontal sectional view taken on the line 7 7 of Fig. 6. Fig. 8 is an enlarged detail perspective view of a modified form of rear-end under-sheet retarder. Fig. 9 is a detail section plan view of same, part being broken away. Figs. 10 and 11 are respectively a detail side elevation and detail perspective view of a further modification of the same device.

1 1 are parts of the main side frames of the paper-feeding machine upon which the supporting-frame of my improved sheet-buckling mechanism is mounted.

2 2 are the longitudinally-extending buckler-supporting bars, which are rigidly secured adjacent to their rear ends in brackets 3 3, which are in turn securely bolted to the inner face of the side frames 1 1.

5 5 are longitudinally-extending buckler-operating shafts journaled at their forward ends in the longitudinally-adjustable brackets 6 6, which are supported upon the bars 2 2 and secured in adjusted position by tap-bolts 7 7. The shafts 5 5 are journaled at their rear ends in suitable bearings 8 8.

9 10 represent worm-gearing, the gear 9 being keyed to one of the shafts 5, while the gear 10 is keyed to the transverse shaft 11, which is the main operating-shaft of the paper-feeding machine. Each of the shafts 5 is independently geared to the transverse main shaft 11 by a pair of gears 9 10. In this manner shafts 5 5 are continuously rotated for the purpose hereinafter explained.

At the inner edges of the longitudinally-adjustable brackets 6 6 are formed bifurcated lugs or ears 6^a, between which are secured the reduced ends of the transverse buckler-supporting bar 15.

16 16 represent bolts which secure the ends of the bar 15 in the bifurcated lugs 6^a, the

ends of bar 15 having elongated slots through which the bolts 16 16 loosely pass.

It will be observed that the buckler-supporting frame comprises the longitudinally-extending rigid bars 2 2 and the transverse bar 15, the bar 15 being adjustable longitudinally upon the bars 2 2 by reason of the adjustable brackets 6 6, which slide upon the bars 2 2. The loose joint connection between brackets 6 and ends of bar 15 prevents the brackets binding upon the bars 2 2, as they would do if the brackets were rigid with bar 15. The brackets 6 6 also slide longitudinally upon shafts 5 5, which are held against longitudinal movement.

I will now describe one of the sheet-buckling mechanisms, from which the structure of both will be understood, as they are substantially identical with the exception that they are reversed.

20 is a casting mounted upon the bar 15 and adjustable thereon transversely of the pile of sheets.

21 represents tap-bolts threaded into suitable openings formed in the bosses of casting 20 and engaging the bar 15 for clamping the casting or bracket 20 in any desired adjusted position.

25 is a vertically-adjustable bracket-arm or slide which is vertically movable in the guideway formed in the rear face of the casting 20 and confined in said guideway by the guide-plates 26, which are secured to the face of the casting by screws 27. The bracket or slide 25 is formed with an outwardly-projecting interiorly-threaded lug 28, through which passes a vertical screw 29, journaled at its upper end in a plate 30, secured to the casting 20. The screw 29 is provided with a crank 31 or other suitable operating means. It will be observed that by revolving the screw 29 the slide or bracket 25 will be moved up or down in the guideway formed in the casting 20, and as the operating parts of the sheet-buckling mechanism are supported from the bracket or slide 25, as hereinafter described, said parts will also be moved up or down, according to the rotation of the screw 29. At the lower end of the sliding bracket 25 is formed a horizontally-extending plate or arm 35, upon the rear face of which is formed the integral horizontal flanges 36, forming, with the plate 35, a dovetail guideway extending in a horizontal direction.

40 is the reciprocating buckler slide or carriage of dovetail vertical cross-section which operates in the guideway formed by the flanges 36.

37 is an elongated slot formed in the plate 35, and 41 is a rod or bolt secured to the inner face of the slide or carriage 40 and projecting through and operating in the slot 37.

42 is a disk or shoe mounted upon the rod 41 and faced with leather or other suitable frictional material, and 43 is a spiral spring mounted upon the rod 41 and confined by the adjustable nut 44 in engagement with the disk or shoe 42 for holding said disk or shoe 42 in frictional contact with the forward face of the plate 35.

Projecting from the rear face of the slide or carriage 40 is a bolt or journal-pin 45, upon which is journaled the buckling-finger 50, having secured in its forward bifurcated end the block or roll 51, of soft rubber or other suitable frictional material.

52 is a torsional spring mounted upon the pin or bolt 45 and having its inner hooked end 52^a engaging a pin 53, projecting from the buckler-finger 50, and its outer end secured in a rotary adjustable washer 54, which has a radially-slotted collar 55, engaged by the pin 56, extending transversely through the pin or bolt 45.

60 is a rock-arm journaled upon and projecting upwardly from the pin or bolt 45. The rock-arm 60 has formed integral with it a forwardly-projecting arm 61, having a rearwardly-projecting finger 62, which rests beneath the buckling-finger 50. The rock-arms 60 and 61 are formed integral and constitute, practically, a bell-crank rock-lever. 63 and 64 are lugs projecting from the face of the slide or carriage 40 for limiting the rocking motion of the bell-crank rock-lever 60 61, and consequently limiting the upward and downward movement of the spring-pressed buckling-finger 50 upon the journal-pin or bolt 45. The construction and arrangement of the spring-pressed buckling-finger upon the slide or carriage, together with the brake and controlling and operating bell-crank rock-lever, are practically the same as described and claimed in my Patent No. 623,769, granted April 25, 1899, for improvements in paper-feeding machines, and these features are not specifically claimed in the present case.

65 is a pitman journaled at one end to a pin 66, projecting from the upper end of the rock-arm 60, and journaled at its opposite end to a crank 67, keyed to or formed integral with a short rotary sleeve 68, which is journaled upon a pin or bolt 68^a, within the head 69, hereinafter referred to, the pin or bolt 68^a being secured to the bracket 70, which is suitably secured to the vertically-adjustable slide 25. The means for rotating the sleeve 68 will be hereinafter described.

80 is the holding-down foot or clamp formed at the forward end of an arm 82, which is journaled upon a bolt 83, projecting rearwardly from the plate 35 (of slide 25) below the reciprocating buckler-carriage 40.

84 is a torsional spring mounted upon the bolt 83 and engaging at one end a pin 85, projecting from the arm 82, and at its other end a pin 86, secured to an adjustable collar 87, mounted upon bolt 83 and clamped in any desired adjusted position by the clamp-nut 88. The spring 84 is for the purpose of holding the shoe or clamp 80 normally down upon the paper for holding the pile intact.

89 is a pin projecting forwardly from one side of the arm 82 of the holding-clamp, and

90 is a vertical rod or pitman connected at its lower end to the pin 89 and journaled at its upper end to a pin 91, secured in the outer end of a lever 92, which is journaled upon a bolt 93, supported in the bracket 25ª, formed integral with the slide 25. The lever 92 carries at its inner end an antifriction-roller 94, which operates upon the periphery of an approximately-semicircular cam 95, keyed to or formed integral with the short rotary sleeve 68, above referred to. By the operation of the rotary cam 95 upon the lever 92 the clamping-plate 80 is intermittently elevated from the pile of sheets to allow the top sheet to be buckled and drawn from beneath the clamping-plate.

100 is an arm or lever journaled upon the bolt 83 alongside the arm 82 and having formed at its inner free end a socket 101, in which is adjustably supported a small block of rubber 102.

103 is a set-screw threaded into the wall of the socket 101 and engaging the rubber block 102 for securing it in any desired adjusted position.

The arm 100 is formed with a downward bend or curved portion 100ª to allow room for the proper operation of the pin 89, which is attached to the arm of the holding-clamp and rests above arm 100 in the notch formed by bend 100ª.

104 is a heel upon the arm 100, and 105 is a spiral spring engaging the heel 104 at its lower end and a hook 106 at its upper end, the hook 106 being secured to the plate 35. The spring 105 holds the rubber block 102 in constant yielding engagement with the top of the pile of sheets, said block resting upon the pile adjacent to the pile-holding clamp 80 and a little in the rear of the inner edge of the holding-down finger or clamp. In Patent No. 615,817, granted to me December 13, 1898, I have described and claimed a sheet-buckling mechanism in which the holding-down clamp or finger is provided with an auxiliary frictional holding device adapted to constantly engage the pile in substantially the same manner as just described in explanation of the frictional device 102. This structure is therefore subject to the claims of said Patent No. 615,817 and forms no part of the invention claimed in the present case.

Detachably secured to the inner end of the bracket-arm 25ª is a bracket 110, in which is slidingly supported the vertically-movable rod 111, provided with a spiral spring 112, which is coiled upon the rod 111 and engages the bracket 110 at its upper end and a pin 113 at its lower end, the pin 113 passing through the rod 111 and engaging the lower flange of the bracket 110 for limiting the downward movement of the rod.

110ª represents screws detachably securing the bracket 110 in place. (See Fig. 5.)

It will be observed that the spring-pressed rods 111 rest constantly upon the top of the pile of sheets near the rear edge and serve to engage the rear edge of any under sheet or sheets (which may have been buckled with the top sheet) to retard said under sheet or sheets and prevent their forward movement with the top sheet under the action of the feeding-off devices. Said rods 111 therefore constitute rear-end sheet retarders or separators.

In place of rods 111 I may employ the substitute devices illustrated in Figs. 8 to 11 of the drawings. The substitute device shown in Figs. 8 and 9 comprises an arm 115, adjustably clamped to the transverse bar 15 and formed with a longitudinal slot 116, through which passes an eyebolt 117, engaging a vertical rod 118 and adapted to be clamped in any desired adjusted position in the slot 116 by means of the butterfly-nut 119. 120 is a grooved washer upon eyebolt 117, engaging rod 118 and clamped against the rod by its engagement with arm 115. The rod 118 projects downwardly to a point adjacent to the top of the pile of sheets and has secured to its lower end an arm 121 by means of a pin 122, passing through the arm and rod. The arm 121 supports a rod 123, upon which is journaled a spring-pressed arm 124, formed with a socket in its forward end, in which is adjustably confined a block 125 of soft rubber. 126 is an adjustable torsional spring mounted upon rod 123 and engaging arm 124. A pin 127 on rod 123 engages a recess or groove 128 in hub portion of arm 124 for confining its movements within certain limits. In Figs. 10 and 11 the rod 118 is provided at its lower end with a pin 129, which confines upon the rod 118 a loosely-mounted socket-piece 130, formed with a bracket-arm 130ª, in which is clamped a rubber block 131. 132 is a weight loosely mounted upon the rod 118, above the socket-piece 130, for the purpose of holding the rubber block of the socket-piece in constant engagement with the top of the pile of sheets. In both forms of devices shown in Figs. 8 to 11 the rubber blocks are intended to be supported in constant engagement with the pile in the proper position transversely of the pile to produce the best results—such, for instance, as the position occupied by the rods 111, for which they are substitutes.

Journaled in the bracket 25ª is a rock-shaft 133, having adjustably clamped upon it an arm 134, carrying in its forward bifurcated end a rubber block 134ª. The arm 134 is adjustably clamped to the rock-shaft 133 by means of a bolt 133ª. Mounted upon one end of the rock-shaft 133 is a spiral spring 135, which engages a pin 136 of the bracket-arm 25ª at one end and an adjustable collar 137 at its opposite end. The collar 137 is formed with the slotted circular flange 138, in the slots of which engage a transversely-extending pin 139. The purpose and structure of the collar 137 are the same as the collar 54, which regulates the tension of the spring 53 upon the buckling-finger, and it will be observed that

the spring 135 will constantly tend to move the rubber block 134ª upon arm 134 into engagement with the top of the pile of sheets. This movement is allowed to occur intermittently by the operation of the rotary cam 140, keyed to or formed integral with rotary sleeve 68, (adjacent to cam 95,) which constantly engages an antifriction-roll 141, journaled in the end of the rock-arm 142, which is keyed to the rock-shaft 133. The cam 140 is approximately semicircular in shape and is placed upon the sleeve 68 in opposite relation to the cam 95, so that when the holding-down finger or clamp 80 is elevated from the pile by the operation of cam 95 the rubber-holding block 134ª will be held in engagement with the pile by the operation of spring 135. It will further be observed that the forward motion of the buckling-finger 50 is accomplished while the rubber-holding block 134ª is in engagement with the pile and that the rearward motion of the buckling-finger is accomplished while the holding-down finger or clamp 80 is in engagement with the pile. The arm 134, with block of rubber 134ª, constitutes a tail-gripper, which engages the under sheet or sheets just in rear of the rear edge of the top sheet as it moves forward under the action of the feeding-off devices.

I will now proceed to describe the extensible driving mechanism which transmits motion from the operating-shafts 5 to the operating parts of the sheet-buckling mechanisms, said extensible driving mechanism being so arranged that the independent transverse and vertical adjustments of the buckling mechanisms can be accomplished without disarranging the operating mechanism or interfering with the continuous operation of the machine, while the longitudinal adjustment of the driving mechanisms is accomplished simultaneously with the same adjustment of the buckling mechanisms upon the buckler-supporting bars.

Keyed to or formed integral with the rotary sleeve 68 is a sprocket-wheel 150, by which said rotary sleeve is driven, the head 69 (in which sleeve 68 rotates) resting between sprocket-wheel 150 and cam 140.

151 is the lower section of an adjustable or extensible strut or brace, and 152 is the upper section of said strut or brace. The lower section 151 is secured at its lower end to the bearing part 69, through which bolt or pin 68ª extends, while the upper section 152 has rigidly secured to it a head 152ª, supporting a short shaft or pin 153. The inner adjacent ends of the sections 151 and 152 are oppositely threaded, and upon these oppositely-threaded adjacent ends is mounted an adjustable union or coupling 154, having a roughened or milled surface 155 to facilitate its operation. 156 and 157 are clamp-nuts mounted upon the threaded ends of the sections 151 and 152, respectively, and adapted to be clamped against the ends of the coupling or union 154 for clamping the same in any adjusted position. The pin 68ª journals the head 69 to the bracket 70 of the buckler-frame 25. It will be observed that the brace or strut 151 152 can be shortened or lengthened by the proper operation of the union or coupling 155.

Journaled upon the short shaft or pin 153 is a sprocket-wheel 160, which is supported by said shaft 153 in the same vertical transverse plane as the sprocket 150.

161 is an endless sprocket-chain passing around the sprocket-wheels 150 and 160 for driving the former from the latter.

165 is a second sprocket-wheel upon the short shaft 153, alongside of and secured to the sprocket-wheel 160.

166 and 167 are the sections of an adjustable transversely-extending strut or brace, connected by an adjustable union or coupling 168. The structure and operation of this adjustable strut or brace 166 167 168 are the same as the one just described formed of sections 151 and 152 and coupling 155. The section 166 is secured to a bearing-head 169, through which the shaft 153 extends, while the section 167 is secured to a bearing 170, journaled upon the shaft 5 and secured to the bracket 6 of the supporting-bar 2.

171 is a sprocket-wheel having spline connection with the shaft 5, so as to be adjustable longitudinally thereof.

175 is a sprocket-chain passing around the sprocket-wheels 171 and 165. The sprocket-wheels 160 and 165 are arranged to rotate together upon shaft 153, the former being driven by the latter.

From this structure it will be observed that the rotation of shaft 5 will be directly transmitted to the rotary sleeve 68, the extensible driving mechanism allowing for any adjustment of the buckling mechanism transversely or vertically with relation to the pile of sheets.

As stated above, the two sheet-buckling mechanisms and their operating mechanisms are substantial duplicates. The operation of the mechanisms will be understood without further description.

The rotary sleeves 68, driven by the two sets of angularly-disposed sprocket-chains, operate the parts of the sheet-buckling mechanisms with an even smooth movement without regard to the adjusted position of the buckling mechanisms. The dotted lines in Fig. 1 indicate the possible movements of the parts of the extensible driving mechanisms to allow for the adjustments of the buckling mechanisms.

The pile of paper P is supported upon an adjustable table or support P′.

The machine described constituting my invention is of course designed to be employed in connection with the essential parts of a paper-feeding machine. The feeding-off devices, of any suitable construction, are indicated by reference-letters F F.

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

1. The combination, in a paper-feeding machine, of suitable sheet-buckling mechanisms, an operating-shaft, and extensible driving mechanism operatively connecting the buckling mechanisms with the operating-shaft, substantially as set forth.

2. The combination, in a paper-feeding machine, of a support for a pile of sheets, sheet-buckling mechanism adjustable up and down with relation to the pile, an operating-shaft, and extensible driving mechanism operatively connecting the buckling mechanism with the operating-shaft, substantially as set forth.

3. The combination, in a paper-feeding machine, of a support for a pile of sheets, sheet-buckling mechanism adjustable transversely with relation to the pile, an operating-shaft, and extensible driving mechanism operatively connecting the buckling mechanism with the operating-shaft, substantially as set forth.

4. The combination, in a paper-feeding machine, of a support for a pile of sheets, sheet-buckling mechanism adjustable up and down and transversely with relation to the pile, an operating-shaft, and extensible driving mechanism operatively connecting the buckling mechanism with the operating-shaft, substantially as set forth.

5. The combination, in a paper-feeding machine, of a support for a pile of sheets, two independent sheet-buckling mechanisms suitably supported above the pile of sheets and independently adjustable up and down with relation to the pile, and independent extensible driving mechanisms operating the independent buckling mechanisms, substantially as set forth.

6. The combination, in a paper-feeding machine, of a support for a pile of sheets, means for automatically elevating the pile-support to retain the top of the pile at the proper level, two independent sheet-buckling mechanisms suitably supported above the pile of sheets and independently adjustable up and down with relation to the pile, and independent extensible driving mechanisms operating the independent buckling mechanisms, and means for operating the independent driving mechanisms, substantially as set forth.

7. The combination, in a paper-feeding machine, of a support for a pile of sheets, two independent sheet-buckling mechanisms suitably supported above the pile of sheets and independently adjustable up and down with relation to the pile, two independent operating-shafts suitably driven by the machine, and the independent extensible driving mechanisms operatively connecting the independent buckling mechanisms with said shafts, substantially as set forth.

8. The combination, in a paper-feeding machine, of a support for a pile of sheets, two independent sheet-buckling mechanisms suitably supported above the pile of sheets and independently adjustable up and down with relation to the pile, a main operating-shaft extending transversely across the machine, the independent operating-shafts extending longitudinally of the machine and suitably geared to the main operating-shaft, and the independent extensible driving mechanisms operatively connecting the buckling mechanisms with said shafts, substantially as set forth.

9. The combination, in a paper-feeding machine, of a support for a pile of sheets, the longitudinally-extending buckler-supporting bars suitably supported from the main frame, the transverse bar supported upon the longitudinal bars and longitudinally adjustable thereon, sheet-buckling mechanism supported upon the transverse bar and adjustable vertically and transversely thereon, and means for operating the sheet-buckling mechanism, substantially as set forth.

10. The combination, in a paper-feeding machine, of a support for a pile of sheets, the longitudinally-extending buckler-supporting bars suitably supported from the main frame, the transverse bar supported upon the longitudinal bars and longitudinally adjustable thereon, independent sheet-buckling mechanisms supported upon the transverse bar and adjustable vertically and transversely thereon, a main operating-shaft, the independent operating-shafts extending longitudinally of the machine parallel with the longitudinal buckler-supporting bars, gearing between the main shaft and longitudinal shafts, and extensible driving mechanisms operatively connecting the buckling mechanisms with the longitudinal shafts and adjustable longitudinally with the transverse bar supporting the buckling mechanisms, substantially as set forth.

11. In a paper-feeding machine, the combination of a support for a pile of sheets, with an adjustable buckling mechanism supported above the pile of sheets, an operating-shaft, and two operating connecting members operatively and pivotally joined at their ends and operatively and pivotally connected respectively to the operating-shaft and buckling mechanism, whereby the buckling mechanism can be operated in any adjusted position, substantially as set forth.

12. In a paper-feeding machine, the combination of a support for a pile of sheets, an adjustable sheet-buckling mechanism supported above the pile of sheets, an operating-shaft, a pair of struts or braces pivoted to the operating-shaft and buckling mechanism and pivotally connected at their ends, and a suitable extensible buckler-operating mechanism supported by said pair of struts or braces and transmitting motion from the operating-shaft to the sheet-buckling mechanism, substantially as set forth.

13. In a paper-feeding machine, the combination of a support for a pile of sheets, suitable adjustable buckling mechanism supported above the pile of sheets, an operating-shaft, a pair of struts or braces journaled re-

spectively upon the operating-shaft and sheet-buckling mechanism and journaled to each other, and a pair of sprocket-chains and their supporting and operating sprockets supported by said adjustable struts or braces and transmitting motion from the operating-shaft to the adjustable sheet-buckling mechanism, substantially as set forth.

14. In a paper-feeding machine, the combination of a support for a pile of sheets, suitable adjustable buckling mechanism supported above the pile of sheets, an operating-shaft, a pair of struts or braces journaled respectively upon the operating-shaft and sheet-buckling mechanism and journaled to each other, means for adjusting the length of the adjustable struts or braces, and a pair of sprocket-chains and their supporting and operating sprockets supported by said adjustable struts or braces and transmitting motion from the operating-shaft to the sheet-buckling mechanism, substantially as set forth.

15. In a paper-feeding machine, the combination of a support for a pile of sheets, suitable adjustable buckling mechanism supported above the pile of sheets, an operating-shaft, a pair of struts or braces journaled respectively upon the operating-shaft and frame of the sheet-buckling mechanism and journaled to each other, sprocket-wheels journaled concentrically to the journals of the struts or braces, and a pair of sprocket-chains supported upon and operated by the sprocket-wheels and transmitting motion from the operating-shaft to the sheet-buckling mechanism, substantially as set forth.

16. In a paper-feeding machine, the combination of a support for a pile of sheets, suitable adjustable buckling mechanism supported above the pile of sheets, an operating-shaft, a pair of struts or braces journaled respectively upon the operating-shaft and frame of the sheet-buckling mechanism and journaled to each other at their adjacent ends, a sprocket-wheel upon the operating-shaft, a sprocket-wheel upon the journal of the strut or brace upon the frame of the buckling mechanism, a pair of sprocket-wheels upon the journal connecting the pair of struts or braces, and a pair of sprocket-chains mounted upon the sprocket-wheels whereby the buckling mechanism is operated from the shaft, substantially as set forth.

17. In a paper-feeding machine, the combination of a support for a pile of sheets, suitable adjustable buckling mechanism supported above the pile of sheets, an operating-shaft, a pair of struts or braces journaled respectively upon the operating-shaft and sheet-buckling mechanism and journaled to each other, means for adjusting the length of the adjustable struts or braces, and suitable extensible buckler-operating mechanism supported by said adjustable struts or braces and transmitting motion from the operating-shaft to the sheet-buckling mechanism, substantially as set forth.

18. In a paper-feeding machine, the combination of a support for a pile of sheets, suitable sheet-buckling mechanism supported above the pile of sheets, an operating-shaft, and a pair of angularly-disposed operating and connecting members operatively connected with the operating-shaft and sheet-buckling mechanism and with each other, substantially as set forth.

19. In a paper-feeding machine, the combination of a support for a pile of sheets, suitable sheet-buckling mechanism supported above the pile of sheets, an operating-shaft, and a pair of angularly-disposed sprocket-chains operatively connected with the operating-shaft and sheet-buckling mechanism and with each other, substantially as set forth.

20. In a paper-feeding machine, the combination of a support for a pile of sheets, suitable adjustable buckling mechanism supported above the pile of sheets, an operating-shaft, a pair of angularly-disposed struts or braces journaled respectively upon the operating-shaft and sheet-buckling mechanism and journaled to each other, means for adjusting the length of the adjustable struts or braces, and a pair of angularly-disposed sprocket-chains and their supporting and operating sprockets supported by said adjustable struts or braces and transmitting motion from the operating-shaft to the sheet-buckling mechanism, substantially as set forth.

21. The combination, in a paper-feeding machine, of a support for a pile of sheets, a buckler-frame suitably supported above the pile, a bracket or frame mounted on the buckler-frame and capable of vertical movement thereon, suitable sheet-buckling devices mounted upon the vertically-movable bracket, and supported thereby in operative relation to the pile, means for operating the buckling devices, and means for adjusting the bracket or frame up and down, substantially as set forth.

22. The combination, in a paper-feeding machine, of a support for a pile of sheets, a buckler-supporting frame including a transverse bar, a suitable supporting casting or bracket mounted upon the transverse bar and adjustable thereon transversely of the pile, a bracket or frame mounted and vertically adjustable upon the transversely-adjustable casting or bracket, suitable sheet-buckling devices mounted upon the vertically-adjustable bracket or frame, means for operating the sheet-buckling devices, and means for adjusting the supporting-bracket with the buckling devices up and down with relation to the pile, substantially as set forth.

23. In a paper-feeding machine, the combination of a support for a pile of sheets, with sheet-buckling mechanism comprising suitable longitudinally-extending rigid bars secured to the frame of the feeding-machine, a transverse buckler-supporting bar adjustably secured to the longitudinally-extending supporting-bars upon which it is adjustable longi-

tudinally of the machine, a casting or bracket mounted upon said transverse bar and adjustable thereon transversely of the machine, the buckler-supporting bracket or frame vertically adjustable upon the casing or bracket, suitable sheet-buckling devices mounted upon the buckler-supporting bracket or frame, means for operating said devices, and means for adjusting the bracket or frame and supported buckling devices vertically, substantially as set forth.

24. In a paper-feeding machine, the combination of a support for a pile of sheets, suitable longitudinally-extending rigid bars secured to the machine-frame, brackets adjustable longitudinally upon said bars, a transverse bar secured at its ends to said bracket by loose joints, and suitable sheet-buckling mechanism supported upon said transverse bar, substantially as set forth.

25. In a paper-feeding machine, the combination of a support for a pile of sheets, an operating-shaft, suitable adjustable sheet-buckling mechanism, a pair of struts or braces journaled to each other and respectively to the operating-shaft and frame of the buckling mechanism, a rotary operating member on the buckler-frame operatively connected with the buckling instruments and journaled concentrically to the journal of the strut or brace journaled thereto, and extensible operating mechanism operatively connecting said rotary operating member of the buckler with the operating-shaft, substantially as set forth.

26. In a paper-feeding machine, the combination of a support for a pile of sheets, suitable adjustable sheet-buckling mechanism including a reciprocating buckling-finger, a rotary crank connected with the buckling-finger, an operating-shaft, and extensible driving mechanism communicating motion from the operating-shaft to the rotary crank, substantially as set forth.

27. In a paper-feeding machine, the combination of a support for a pile of sheets, suitable adjustable buckling mechanism supported above the pile of sheets, and including a vertically-movable horizontally-reciprocating sheet-buckling finger, a rotary operating member carrying a rotary crank suitably connected with the buckling-finger, an extensible driving mechanism communicating motion from the operating-shaft to the rotary operating member, substantially as set forth.

28. In a paper-feeding machine, the combination of a support for a pile of sheets, suitable sheet-buckling mechanism including a buckling-finger, a rotary operating member having a crank, a pitman connecting said crank to the buckling-finger, an operating-shaft, and means for transmitting motion from the operating-shaft to the rotary operating member, whereby the buckling-finger will be moved into and out of engagement with the sheet and be reciprocated for buckling the sheet, substantially as set forth.

29. In a paper-feeding machine, the combination of a support for a pile of sheets, with suitable sheet-buckling mechanism comprising a horizontally-reciprocating buckler-carriage, a spring-pressed buckling-finger journaled upon said carriage, a holding-down clamp or finger engaging the pile, a spring for holding the clamp into engagement with the pile, a rock-arm connected with the clamp, a rotary operating member provided with a crank which is suitably connected with the buckler carriage and finger for operating them, a cam upon said rotary operating member engaging the rock-arm of the spring-pressed clamp, and means for operating said rotary member, substantially as set forth.

30. In a paper-feeding machine, the combination of a support for a pile of sheets, and an operating-shaft, with suitable sheet-buckling mechanism comprising a reciprocating carriage, an oscillating buckling-finger journaled upon the carriage, a rock-arm engaging the buckling-finger, a rotary operating member provided with a crank, a pitman connecting the crank with the rock-arm, a spring-pressed holding finger or clamp normally in engagement with the pile of sheets, a rock-lever connected with said holding finger or clamp, and a cam upon the rotary operating member engaging said rock-lever, substantially as set forth.

31. In a paper-feeding machine, the combination of a support for a pile of sheets, and an operating-shaft, with suitable sheet-buckling mechanism comprising a reciprocating carriage, an oscillating buckling-finger journaled upon the carriage, a rock-arm engaging the buckling-finger, a rotary operating member provided with a crank, a pitman connecting the crank with the rock-arm, a spring-pressed holding finger or clamp normally in engagement with the pile of sheets, a rock-lever connected with said holding finger or clamp, and a cam upon the rotary operating member engaging said rock-lever, an intermittently-operating tail-gripper mounted upon a suitable rock-shaft, a rock-arm keyed to said rock-shaft, and a second cam upon the rotary operating member engaging the rock-arm and operating the tail-gripper, substantially as set forth.

32. In a paper-feeding machine, the combination of a support for a pile of sheets, suitable sheet-buckling mechanism, means for operating the sheet-buckling mechanism, a device arranged in front of the buckling-finger in constant engagement with the pile of sheets against which the sheet is buckled, said device being adapted to prevent the forward movement of any under sheets with the top sheet, substantially as set forth.

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