No. 875,260.

PATENTED DEC. 31, 1907.

B. GUSTAFSON.

AUTOMATIC STOP MECHANISM FOR PAPER SHEET HANDLING MACHINES.

APPLICATION FILED JAN. 26, 1906.

7 SHEETS—SHEET 1.

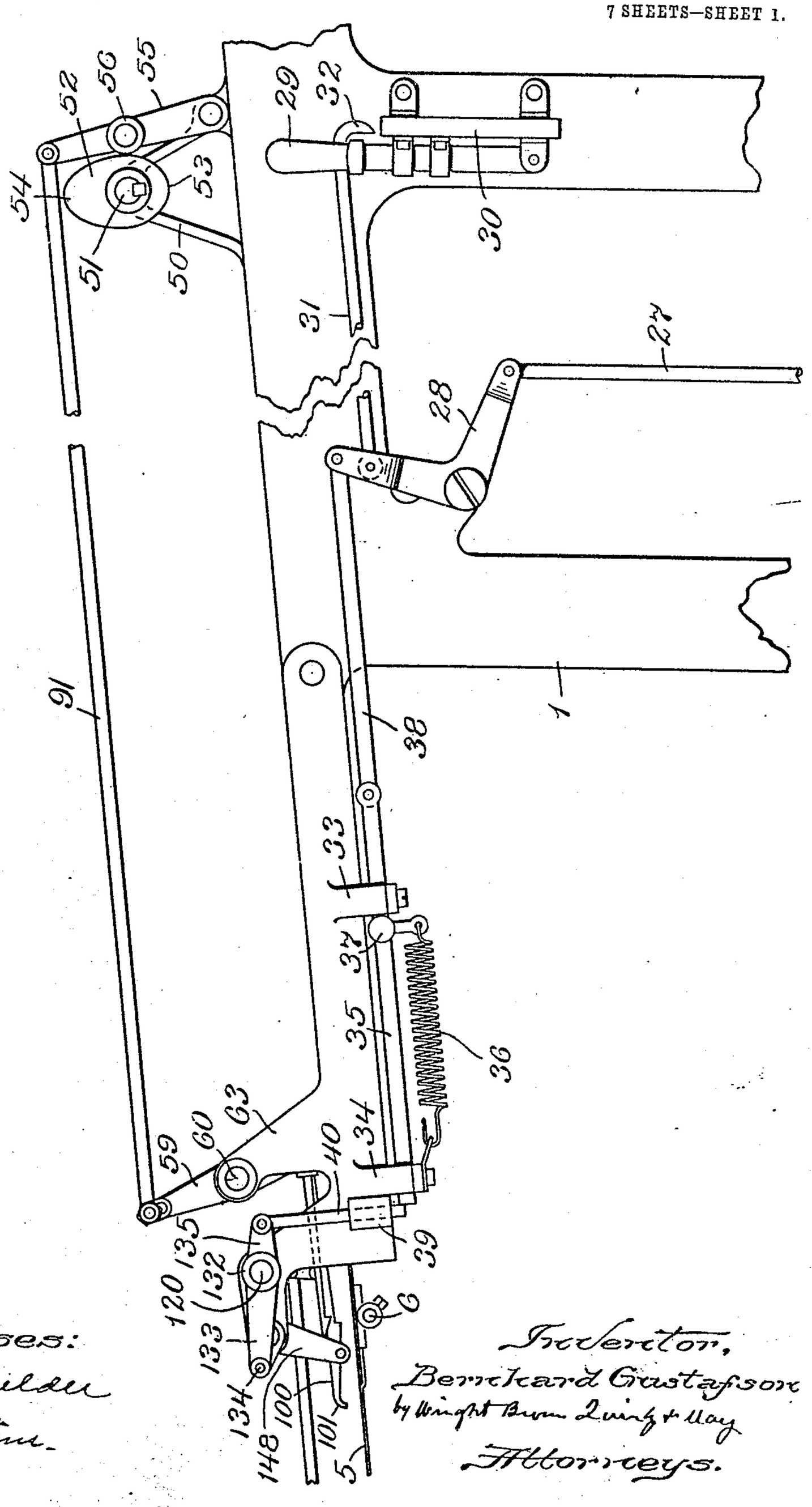

Fig. 1.

Witnesses:
E. Batchelder
H. L. Robbins.

Inventor,
Bernhard Gustafson
by Wright Brown Quinby & May
Attorneys.

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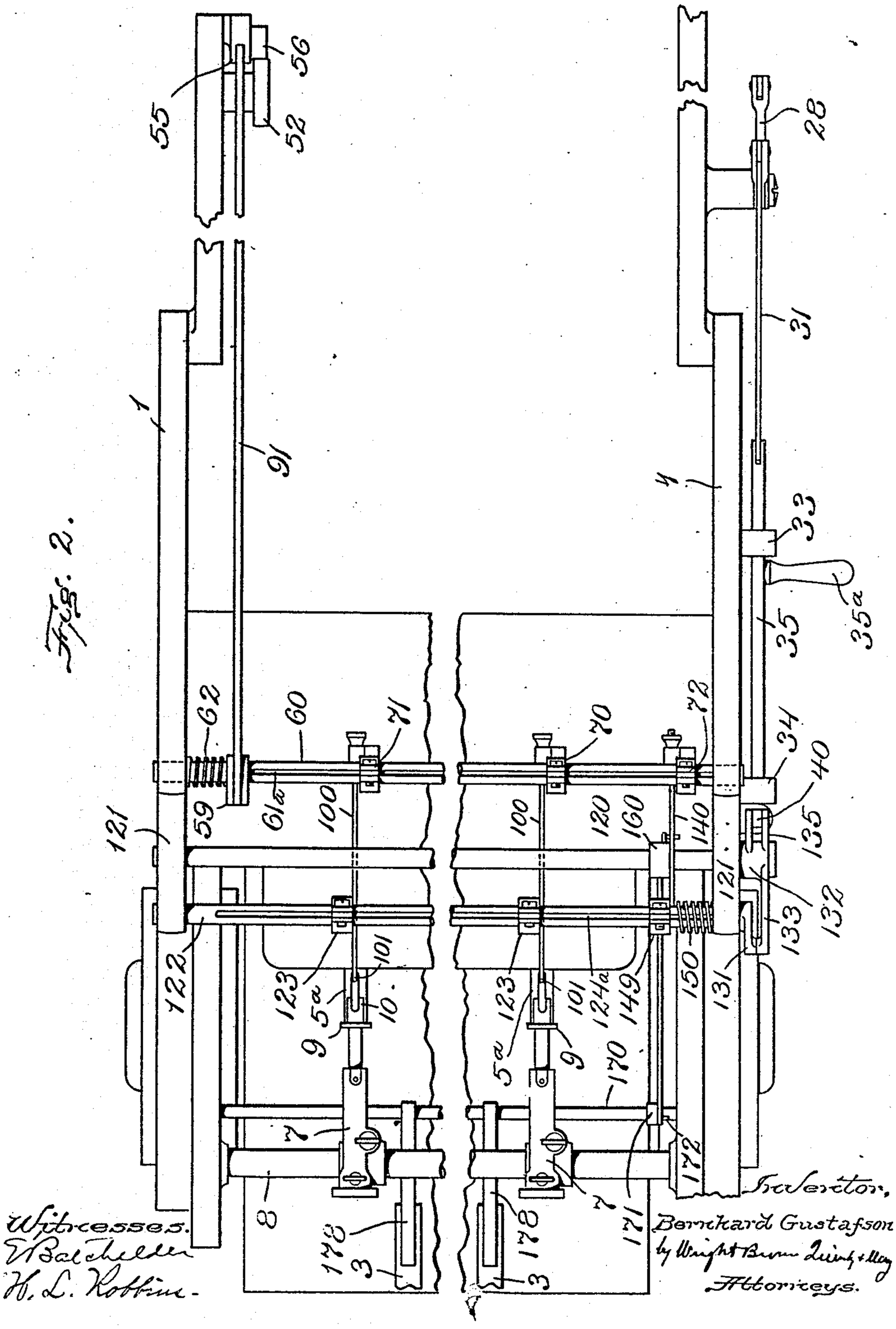
7 SHEETS—SHEET 2.

Fig. 2.



Witnesses.
E. Batchelder
H. L. Robbins.

Inventor,
Bernhard Gustafson
by Wright Brown Quinby & May
Attorneys.

192 CLUTCHES & POWER-STOP CONTROL
126

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7 SHEETS—SHEET 3.

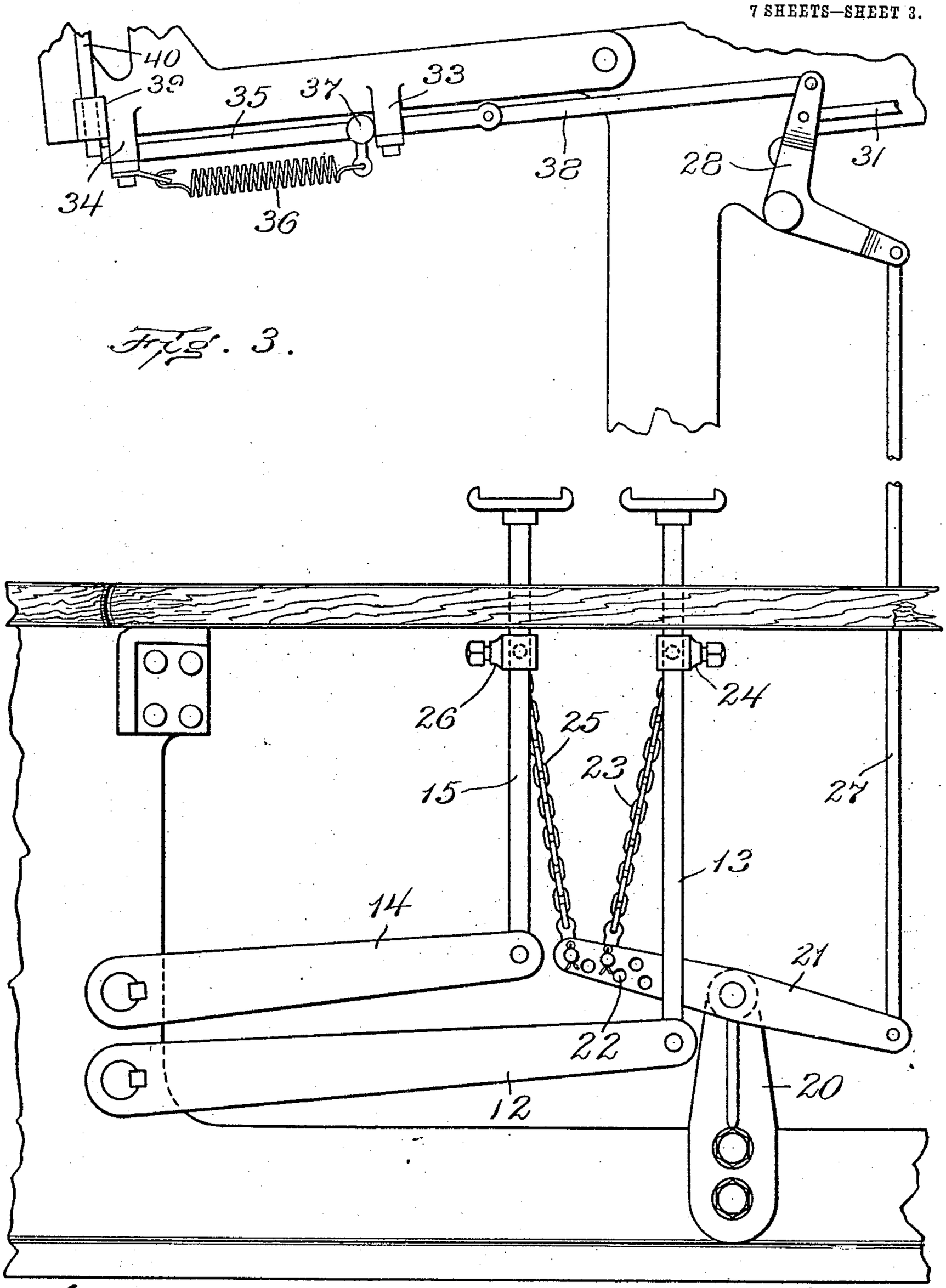

Fig. 3.

Witnesses:
W. Batchelder
H. L. Robbins.

Inventor,
Bernhard Gustafson,
by Wright Brown Quinby & May
Attorneys.

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7 SHEETS—SHEET 4.

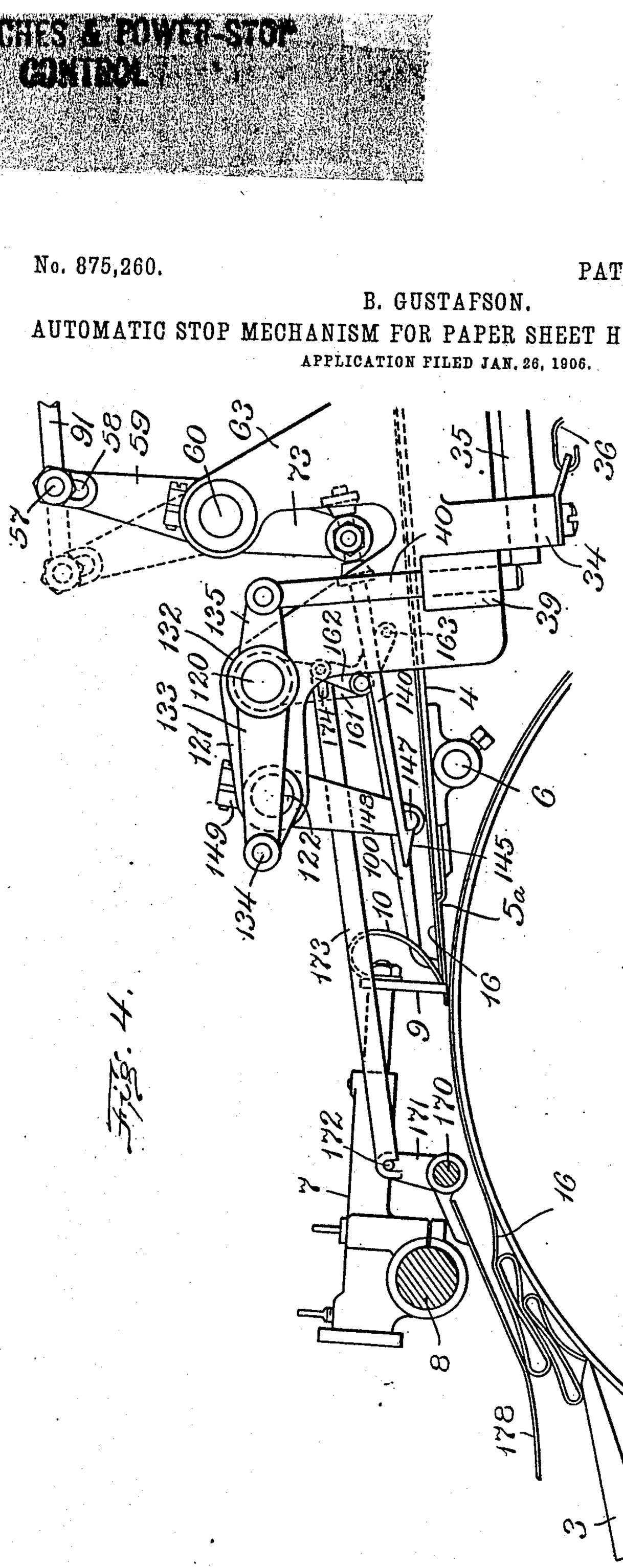

Fig. 4.

Witnesses:
E. B. Atwell
H. L. Robbins.

Inventor,
Bernhard Gustafson
by Wright Brown Quinby & May
Attorneys.

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B. GUSTAFSON.

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7 SHEETS—SHEET 5.

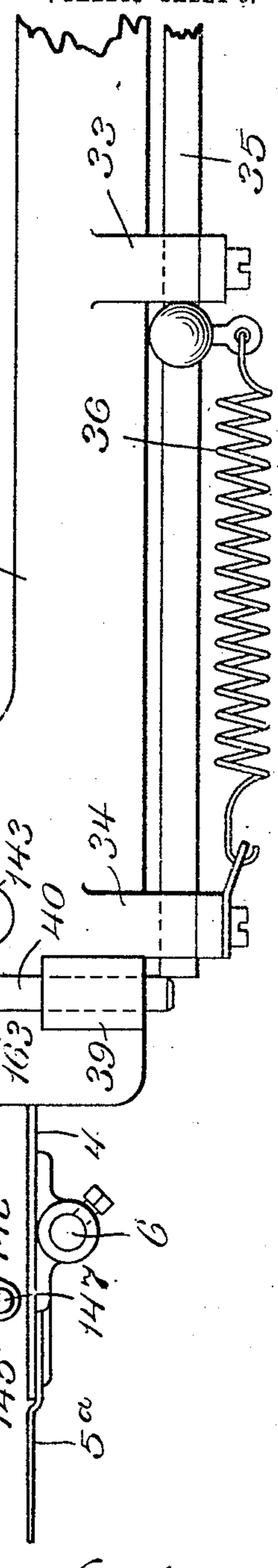

Fig. 5.

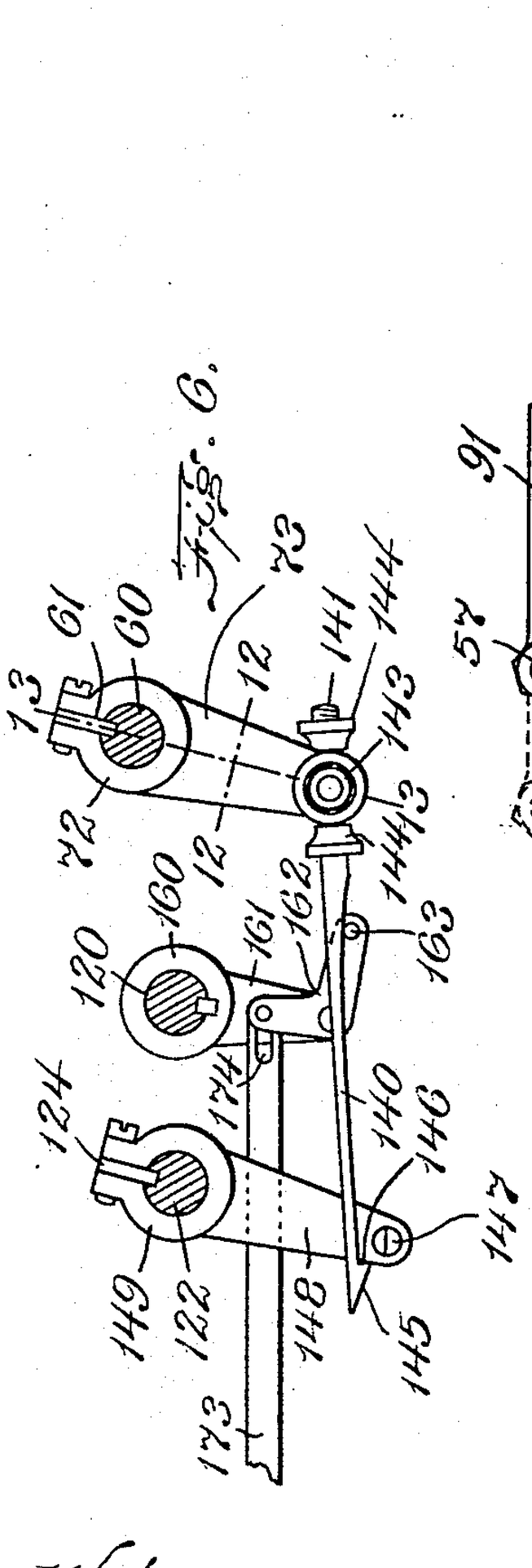

Fig. 6.

Witnesses:
E. Batchelder
H. L. Robbins.

Inventor.
Bernhard Gustafson
by Wright Brown Quinby & May
Attorneys.

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7 SHEETS—SHEET 6.

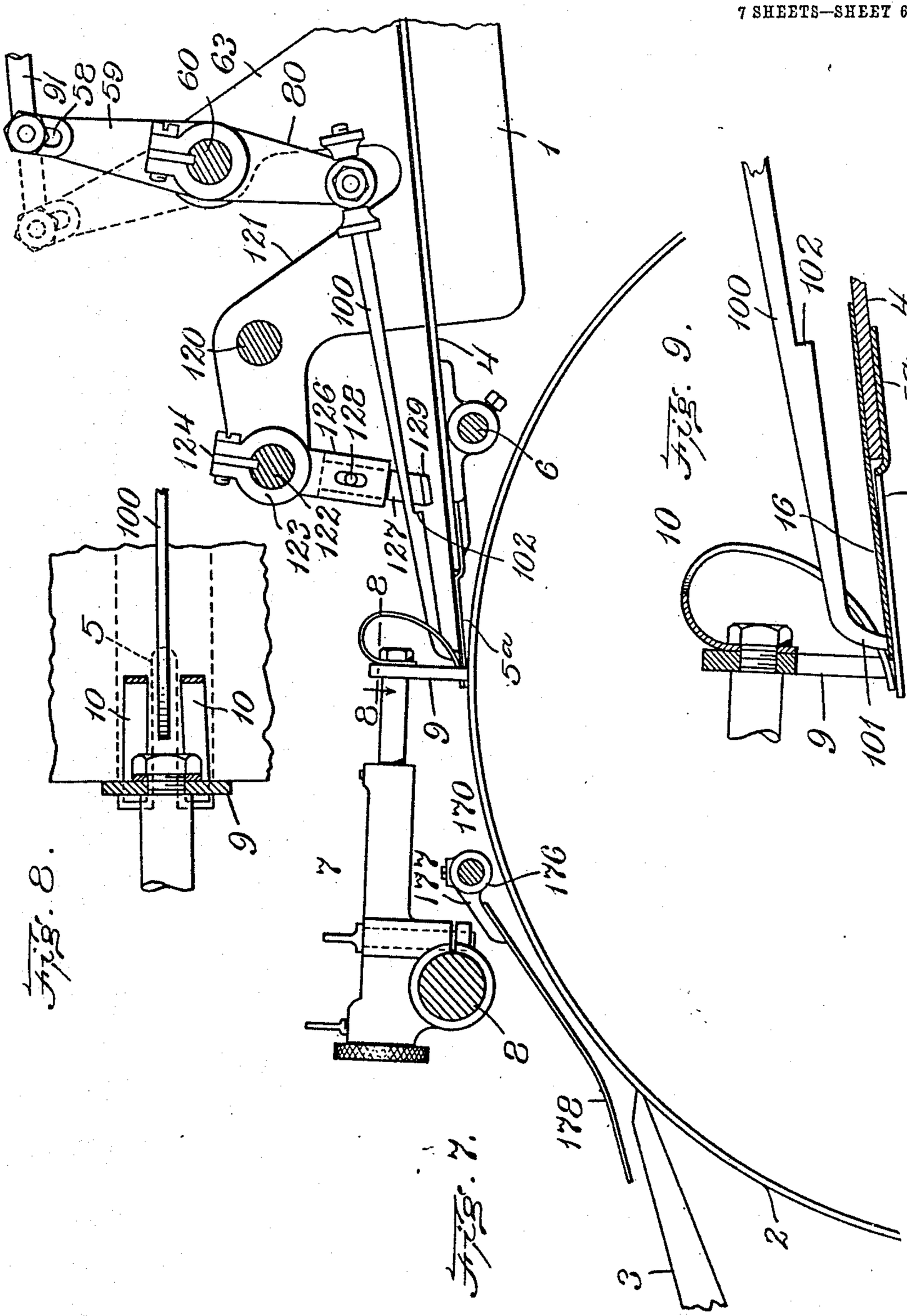

Fig. 8.

Fig. 9.

Fig. 7.

Witnesses:
E. Batchelder
H. L. Robbins.

Inventor,
Bernhard Gustafson,
by Wright Brown Quinby & May
Attorneys.

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B. GUSTAFSON.

AUTOMATIC STOP MECHANISM FOR PAPER SHEET HANDLING MACHINES.

APPLICATION FILED JAN. 26, 1906.

7 SHEETS—SHEET 7.

Fig. 10.

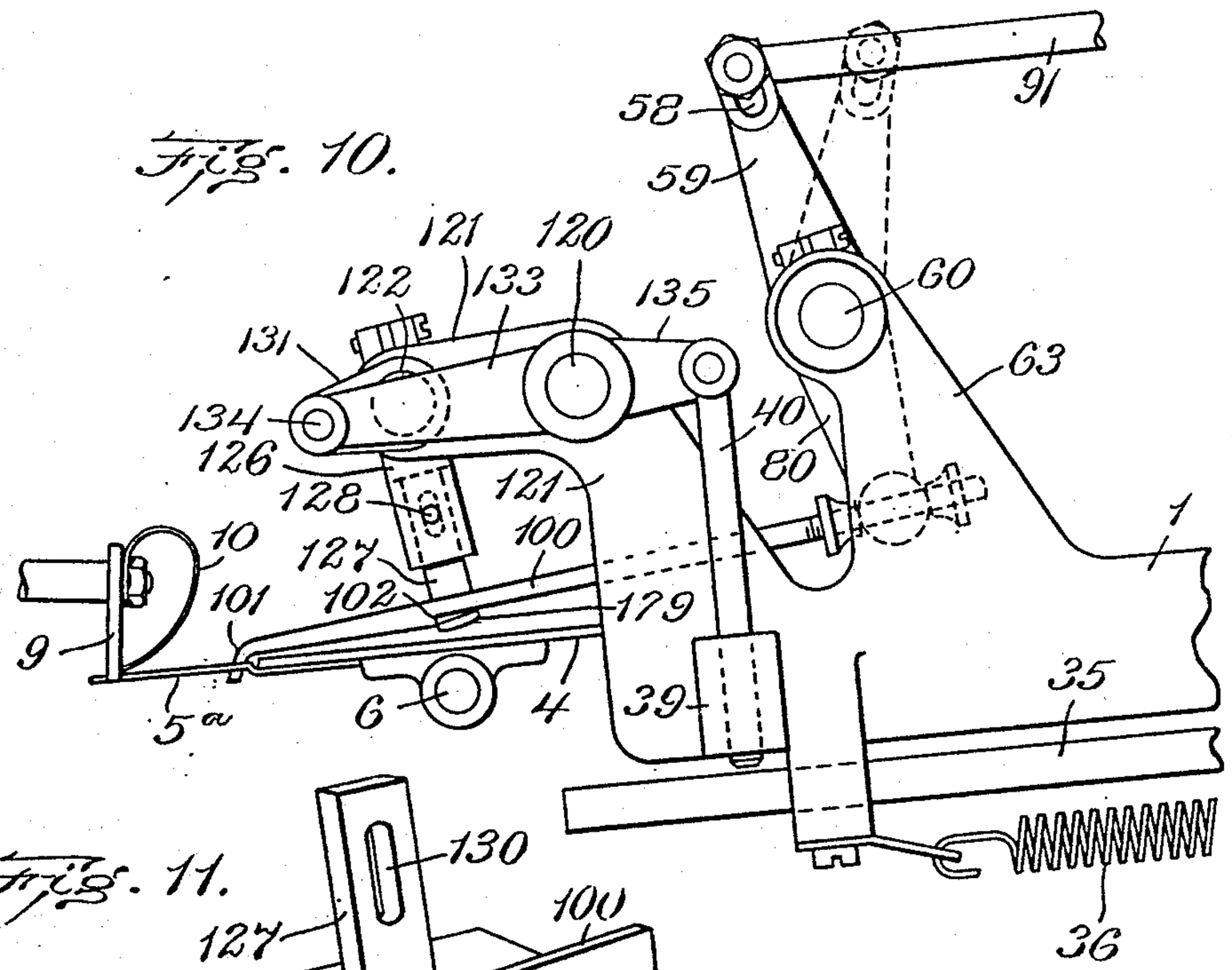


Fig. 11.

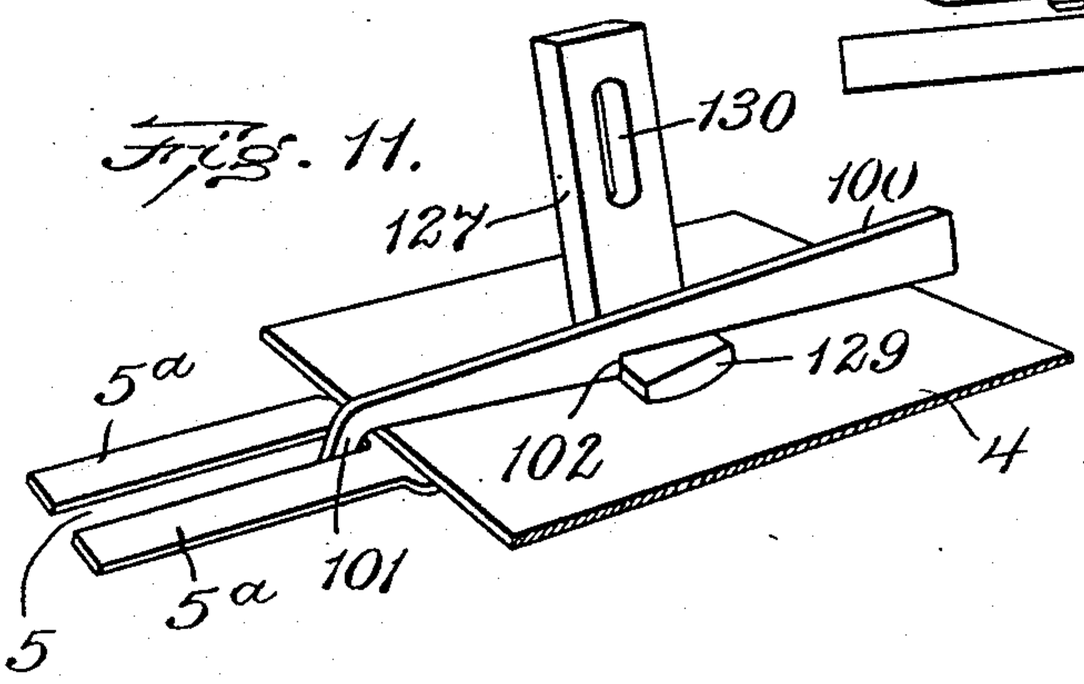


Fig. 12.

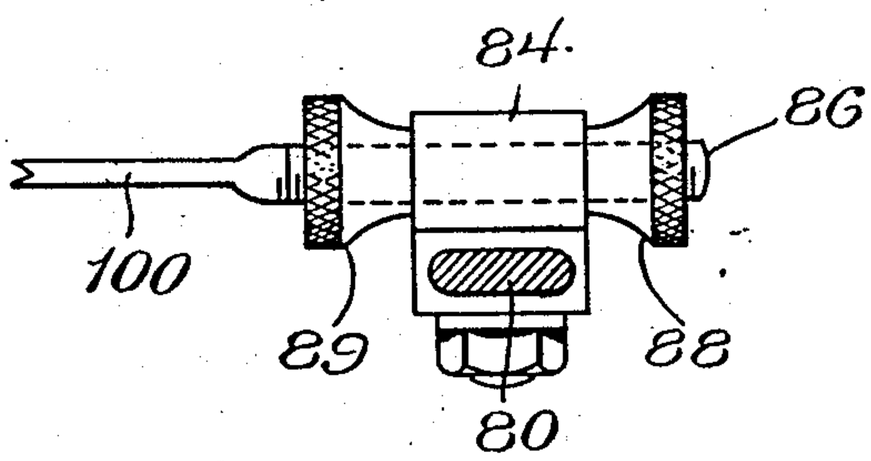
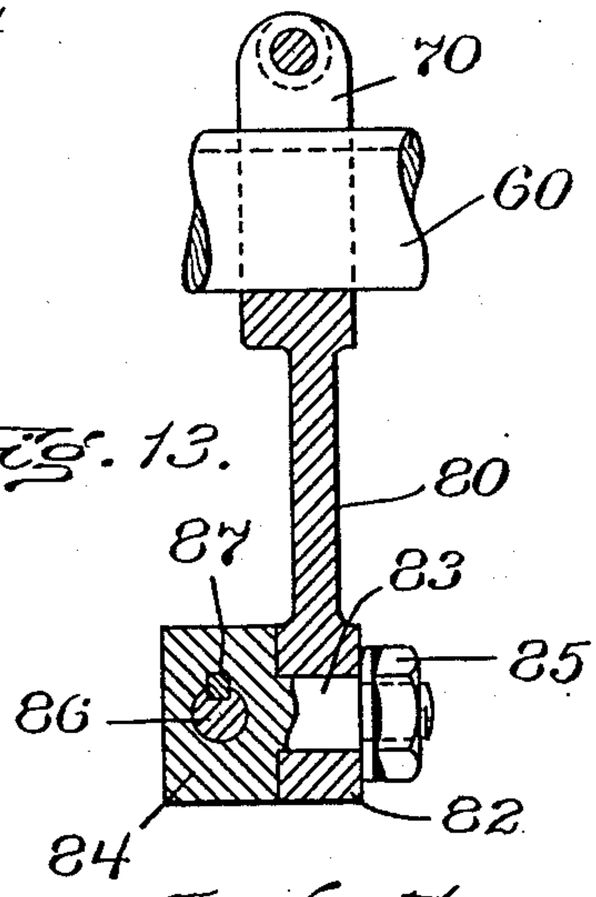


Fig. 13.



Witnesses:
E. Batchelder
H. L. Robbins.

Inventor,
Bernhard Gustafson
by Wright Brown Quinby & May
Attorneys.

UNITED STATES PATENT OFFICE.

BERNHARD GUSTAFSON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE UNITED PRINTING MACHINERY COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

AUTOMATIC STOP MECHANISM FOR PAPER-SHEET-HANDLING MACHINES.

No. 875,260. Specification of Letters Patent. Patented Dec. 31, 1907.

Application filed January 26, 1906. Serial No. 298,071.

To all whom it may concern:

Be it known that I, BERNHARD GUSTAFSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Automatic Stop Mechanism for Paper-Sheet-Handling Machines, of which the following is a specification.

This invention relates to an improvement in automatic stop mechanism for paper sheet handling machines.

Figure 1, in side elevation, shows a part of the framework of a paper sheet feeding apparatus with my automatic stop mechanism arranged thereon, the sheet detector-finger and buckling hook showing in side elevation, the buckling detector-finger and the sheet trip-finger not being shown; in this view also appears the connection between the power devices of the machine and the intermediate devices controlled by the trip-fingers. Fig. 2 is a top plan view of the parts as illustrated in Fig. 1, showing the connecting-rod by which motion is imparted to the cranks that operate the detector-fingers, this view also showing the two sheet detector-fingers in their proper relation with reference to the press guides. Fig. 3, in side elevation, shows the connection between the automatic stop mechanism immediately under control of the trip-fingers and the trip and brake levers, the latter also being shown as connected to the usual treadles. Fig. 4, in side elevation, shows the delivery end of the feeding mechanism having my automatic stop mechanism arranged thereon, the printing cylinder being shown diagrammatically, and the buckling detector-finger shown as raised to effect the automatic stopping of the machine through the action of the buckling detector-finger. Fig. 5, in side elevation, shows the buckling hook, its tripping crank, and the means controlled by the buckling detector-finger for maintaining the buckling hook in an inoperative position, or the position occupied by the parts when a sheet delivers properly from the cylinder and does not buckle. Fig. 6 is a like view with some of the parts removed. Fig. 7 is a view similar to Fig. 4, showing the sheet detector-finger in engagement with a sheet of paper, the latter being properly positioned upon the tongues and against the press guides. Fig. 8 is a horizontal sectional view on the line 8—8 of Fig. 7, looking in the direction of the arrows, showing the sheet detector-finger arranged between the two spring fingers of the press guides, and over a slot in the tongues of the machine. Fig. 9 is a detailed view showing one of the spring fingers of the press guide, the end of the sheet-detector-finger resting upon a sheet of paper, the sheet of paper being properly positioned upon the tongue and against the press guide. Fig. 10 is a detail view showing the position assumed by the sheet detector-finger and the sheet trip-finger, when a sheet of paper fails to be positioned upon the tongue and against the press guides. Fig. 11 is a detail view showing the sheet detector-finger, the position it occupies when a sheet fails to register, the end of the finger being in a slot of the tongue, the finger resting upon the plate and with its shoulder in operative engagement with the sheet trip-finger. Fig. 12 is a cross-sectional view on the line 12—12 of Fig. 6, looking in the direction of the arrow, showing the manner of mounting the rear end of the sheet detector-fingers and the buckling hook. Fig. 13 is a sectional view on the line 13—13 of Fig. 6, showing the block that carries the rear end of a sheet detector-finger over the buckling hook.

The general framework on cylinder 2, delivery fingers 3 (Fig. 4), the plate 4, tongue 5^a, rod 6, supporting the lower end of the plate and the rear end of the tongue, the press guides 7, 7, the rod 8 on which said press guides are supported, the guide-plate 9, the guide-fingers 10, 10 (Fig. 8), the brake lever 12 and its treadle rod 13, the trip lever 14 and its treadle rod 15 may be, and as here shown, are of the common and well known form and arrangement. The mechanism for feeding sheets of paper is not shown, nor is the mechanism for operating the printing cylinder, these mechanisms forming no part of my invention.

While I have shown my invention connected with a printing cylinder, I do not wish to be understood as limiting the field of my invention to said art, since it might be employed and is intended to be employed in any relation where the handling and registering of sheets of paper is desired.

Referring to Fig. 3, 20 represents a bracket connected with the lower portion of the framework near the free ends of the levers 12, 14. 21 represents a lever pivoted to the bracket 20. One end of this lever 21 is formed with a series of holes 22. 23 repre-

sents a chain having its lower end connected to a pin arranged in one of the holes 22, and having its other end secured to a lug 24, adjustably secured upon the rod 13. 25 represents a chain having its lower end connected to a pin arranged in one of the holes 22, while its upper end is secured to a lug 24 adjustably mounted on the rod 15. By this arrangement as the left hand end of the lever in Fig. 3 is depressed, the rods 13 and 15 will likewise be depressed the same way as if they had been depressed by the foot of the operator in the ordinary way to apply the brake or operate the trip, as the case might be. 27 (Fig. 3) represents a rod, the lower end of which is connected with one arm of the lever 21, the upper end of this rod being connected with the horizontal arm of a bell crank lever 28, pivoted at its angle upon the framework. 29 (Fig. 1) represents the handle of a conventional brake switch 30 secured on the framework to one side of the bell-crank 28. 31 (Fig. 1) represents a rod pivoted to the vertical arm of the bell-crank 28 and formed upon its free end with a hook-shaped member 32, adapted to engage the handle 29 of the brake switch in order to pull said handle to the left (Fig. 1) to break the circuit, or to stop the machine in cases where an electric motor is used for driving the machine. Where other forms of power are employed instead of the brake-switch handle 29 any movable form of shipper lever or equivalent device may be employed and connected up to the bell-crank 28 in any desired way.

Referring to Figs. 1, 3, and 5, 33 and 34 represent two lugs formed on the framework of the machine in advance of the position occupied by the bell-crank 28. These lugs are perforated and slidingly arranged in said lugs is a rod 35. 35[a] represents a handle rigidly secured to the rod 35 (Fig. 2), by which means said rod may be operated to position the latter after it has been moved by the spring hereinafter described. 36 represents a coiled spring, one end of which is connected to the lug 34 in any desired way, the other end of said spring being connected to a lug 37 fast on the rod 35, the spring tending to throw the rod 35 to the left. (Fig. 1). 38 represents a rod, one end of which is pivoted to the rear end of the rod 35, while the opposite end of the rod 38 is pivoted to the vertical arm of the bell-crank 28.

It will be clear from the foregoing that a movement of the rod 35 to the left (Fig. 1) would operate the bell-crank 28, not only to shut off the power from the machine, and thus act as a stop, but also to operate the trip lever 14 and the brake-lever 12. If desired, of course, the rod 31, or the connection of the lever 21 with either of the rods 13 or 15 could be omitted.

39, (Figs. 1, 3, 4, and 5) represents a lug formed upon the framework adjacent to the lug 34. The lug 39 is perforated, and in such perforation is arranged a short rod 40, the lower end of which is adapted to act as a detent to maintain the rod 35 in the position shown in Fig. 5 against the tension of the spring 36. When, however, as hereinafter described, the rod 40 is pulled up from the position shown in Fig. 5, to the position shown in Fig. 10, to clear the end of the rod 35, the spring 36 draws the rod 35 to the left, as shown in Fig. 1, to the position shown in Fig. 10, thus operating the automatic stop and levers of the brake and trip mechanisms. Brackets, (Fig. 1) are supported upon the framework back of the bell-crank 28, and formed with suitable bearings in which is arranged a shaft 51 adapted to be connected up and driven in any desired way.

52 represents a cam fast on shaft 51 formed with two throws 53 and 54.

55 represents a lever pivoted at its lower end to the framework in the rear of the cam 52. The lever 55 carries a roll 56 adapted to engage the cam 52.

91 represents a rod pivoted at its rear end to the free end of the lever 55. The front end of the rod 91 carries a bolt 57 adjustably positioned in a slot 58 formed in the end of the lever 59 mounted upon a shaft 60, the ends of which are arranged in suitable bearings in brackets 63, projecting upwards from the framework. The shaft 60 carries a spline or rib 61[a], which serves as a means by which the hub of the lever 59 is locked about the shaft. A coil spring 62 is arranged on the shaft 60, one end of said spring being secured to the framework, the other end of said spring being secured to the hub of the lever 59. This spring serves to keep the roll 56 (Fig. 1) in engagement with the cam 52, the action of the spring 52 being to turn the shaft 60 (Fig. 2) in a direction opposite to that of the travel of the hands of a watch.

70, 71, and 72 represent three hubs rigidly mounted upon the shaft 60. (See Fig. 2). The hub 72 carries a lever 73 that carries at its lower end the buckling trip-finger, hereinafter described. (Figs. 5 and 6.) The hubs 70 and 71 carry levers 80, and 81, respectively. The hubs 70 and 71 and the levers 80 and 81 are duplicates of each other. The lever 80 carries at its lower end a sheet detector-finger, hereinafter described. In Fig. 2, the arrangement of the two hubs and the two companion sheet detector-fingers, and their relative arrangement to the two press guides 7 and 8 is clearly shown. The construction of the two sheet detector-fingers is identical, and the description of one will suffice for both, it being understood that one is a duplicate of the other, and that both are operated simultaneously.

Referring to Figs. 7, 8, 9, 10, 11, 12, and 13, 100 represents what I term a sheet de-

tector-finger, the same as shown comprising a rod, the free end of which is formed with a hook-shaped member 101, adapted to engage a sheet of paper 16 between the fingers 10 of the press guide and just in front of the guide-plate 9. The said hook-shaped member 101 being adapted when a sheet of paper is not present to fall in a slot 5 in the tongue 5^a carried by the plate 4. (See Fig. 11.) The sheet detector-finger 100, back of the hook-shaped member 101, is formed with a shoulder 102 adapted for engagement with the sheet trip-finger, hereinafter described.

The end of the lever 80 of the hub 70 is formed as a hub 82.

83 represents a bolt loosely arranged in the hub 82, so as to permit the bolt to turn in the hub. The bolt upon one side is formed with a block 84, which in effect constitutes the head of the bolt.

85 represents a nut. In the arrangement as shown in Fig. 13, the nut 85 is arranged upon one side of the hub 82, while the head or block 84 is arranged on the other side of the hub 82. By this means the block 84 is properly positioned against the hub 82 and held in place, although at the same time the bolt 83, as well as the hub, is free to oscillate. The rear end of each detector-finger 100 is formed as a screw-threaded rod 86, and arranged in a suitable aperture in the block 84. (See Fig. 13.) A spline 87 arranged in the block, and the rod 84 serves to maintain said rod 86 and the detector-finger against turning.

88 and 89 represents two adjusting screws mounted upon the rod 86 on either side of the block 84. By means of the screws 88 and 89 the rod 86 may be adjusted in and out of the block 84, and thereafter rigidly secured to block 84, secured against endwise displacement. By the described construction the sheet detector-finger 100 can be moved back and forth by means of the lever 80. At the same time the sheet detector-finger 100 can have an up and down movement for the purposes hereinafter described, due to the swiveled connection of the block 84 with the hub 82.

120 represents a shaft rigidly mounted at its ends in the brackets 121, (Figs. 2 and 10), the shaft 120 being just in advance of the shaft 60.

122 (Figs. 2, 4, 5, 6, 7, and 10) represents a shaft having its ends arranged in suitable bearings in the brackets 121, and being positioned in advance of the shaft 120.

123, 123 represent two hubs fast on the shaft 122 and locked to said shaft by means of a spline 124^a. These hubs 123 are duplicates, there being one adjacent to each detector-finger 100. Each hub 123 carries an arm 126 formed at its front end with a socket in which is arranged a flat bar 127, (Figs. 7, 10, and 11). A set-screw 128 extends through the wall of the socket part of the lever 126 and is arranged in a slot 130 in the flat bar 127, thus screwing the bar in any desired position of adjustment in the socket. The bar forms a part of the lever, and the above construction permits the length of the lever to be changed if desired. The end of the bar 127 is formed with an outwardly turned portion or lip 129 that lies immediately beneath its complemental detector-finger 100 and arranged to be engaged by the shoulder 102 and the detector finger when the parts assume the position shown in Figs. 10 and 11. The lever 126 and its parts constitute what I term a sheet trip-finger.

131 (Figs. 2, 5, and 10) represent a short crank-arm secured to one end of the shaft 122 just outside of the bracket 121.

132 represents a hub loosely mounted to the end of the shaft 120 outside the bracket 121. A lever 133 formed upon the hub 122 is pivoted at its free end to the crank-arm 131 by a pin 134, so that motion imparted to the shaft 122 by means of a movement given by the sheet trip-finger 127 will be transmitted to the hub 132 through the connection of the crank-arm 131 and the lever 133, thereby lifting the rod 40, the latter being pivoted at its upper end to a lever 135 carried by the hub 132, (see Figs. 1, 2, 3, 4, 5, and 10). The end of lever 73 (see Figs. 5 and 6) carries a block 143 like the block 84 shown in Fig. 13, (see Figs. 5 and 6).

140 represents what I term the buckling-hook, the rear end of which is formed with a screw rod 141, arranged in the block 143, in the end of the lever 73, the rod 141 being secured in any desired adjustable position by means of the nuts 144, 144. The front end of the buckling-hook 140 is formed with an incline 145 terminating in a shoulder 146, corresponding with the shoulder 102 on the sheet detector-finger 100, adapted to be engaged, as hereinafter described, by a pin 147 secured to the end of a lever 148, carried by a hub 149 on the shaft 122, (see Fig. 2).

150 represents a coiled spring arranged on the shaft 122, one end of said spring being secured to the bracket 121, the other end of the spring being secured to the hub 149, said spring acting to turn the shaft 122 in the direction of the hands of a watch, (see Figs. 2 and 5), thus acting to maintain the rod 40 in position as a detent.

160 represents a hub secured on the shaft 120 in the rear of the hub 149, (see Figs. 2, 4, and 6). The hub 160 is formed with a downwardly projecting arm 161, on the lower end of which is pivoted a bell-crank 162. The horizontal arm of this bell-crank carries a pin 163 arranged below, and adapted to engage the under side of the buckling-hook 140 to normally maintain said hook in

the position shown in Figs. 5 and 6, where its shoulder 146 will be out of the plane of the pin 147 of the lever 148.

170 (Figs. 2, 4, and 7) represents a shaft arranged in suitable bearings in the frame-work. This shaft is arranged above the cylinder 2 below the press guides 7 and between the rod 8 and the plate 9 of the press guides.

171 represents a lever rigidly secured to the shaft 170, and carrying at its free end a pin 172.

173 represents a bar, the front end of which is formed with a notch arranged upon a pin 172. The rear end of this bar is formed with a slot 174 in which is arranged an adjustable pin carried by the vertical arm of the bell-crank 162. This provides means for adjusting the parts to the machine. The bar 173 and the parts carried by shaft 170 serves to maintain the pin 163 of the bell-crank 162 in its raised position, and in the position shown in Fig. 6, where it serves to keep the buckling-hook 140 raised with its shoulder 146 above and out of the plane of the pin 147 of the lever finger 148.

176 represents a series of collars rigidly secured to shaft 170. There may be one or more of such collars, as desired, the exact number depending upon the form and arrangement of the machine and the work to be done. Each collar 176 carries a lug 177, to which is secured a long spring or arm 178, that extends adjacent down the delivery fingers 3, standing over a space between said fingers, (see Fig. 7). The springs or parts 178 I term the buckling detector-finger or fingers, there being two such fingers shown, (see Fig. 2), although, as stated, any desired number may be employed.

The operation of my improved apparatus is as follows: Assuming the machine to have stopped, the operator, by means of a handle 35ª, draws back the rod 35 from the position shown in Fig. 10, to the position shown in Fig. 1, thus permitting the rod 40 to be forced down in front of the end of the rod 35 to act as a detent. This downward movement of the rod 40 is occasioned by the action of the spring 150, (Fig. 2), whose normal tendency is to turn the short crank 131 (Fig. 5) in the direction of the hands of a watch, thus lifting the lever 133 and depressing the lever 135 and the rod 40. This movement of the rod 35 raises the brake lever 12, trip-lever 14 and applies power to the machine, either by the brake-switch 30, or some other power connection device. The sheets of paper 16, or other material, are fed over the plate 4 by any suitable or desired mechanism, passing from the tongues 5 to the printing cylinder 2, about said cylinder, and thereafter being delivered by said cylinder on to the delivery fingers 3. If the sheets of paper are properly fed, approach the press guides at the plate 9 at the proper time, pass about the cylinder 2 and deliver evenly upon and freely pass over the delivery fingers 3, the operation of the machine is not interfered with by my apparatus.

Referring to Figs. 1 and 2, the cam 52 gives the rod 91 two reciprocations, one by means of the throw 54, and the other by means of the throw 53, the latter being shorter than the former, thus giving to the shaft 60 corresponding movements. The greater or longer movement of the shaft 60 occurs when the sheet is being presented at the guide-plate 9, the shorter of said movements taking place when the sheet is passing from the cylinder 2 to the delivery fingers 3. This described movement of the shaft 60 gives to each of the detector-fingers 100 and to the buckling-hook 140 (Fig. 2) a simultaneous short and long reciprocation, these parts moving simultaneously as they are all carried by levers fast upon the shaft 60. The buckling-hook 140 rides on the pin or roll 163. The hook-shaped member of the sheet detector-finger 100 at the time the sheet 16 should be against the guide-plate 9, moves downward from a position over the plate 4 over a slot 5 in the tongue 5ª to the point shown in Fig. 9. If, during the movement of the part 101, the sheet of paper 16 is positioned against the guide-plate 9, said sheet will maintain the part 101 at the point shown in Fig. 9 and prevent its dropping in the slot 5 in the tongue 5ª. This movement of the hook-shaped member 101 and its reverse movement is occasioned by the long reciprocation of the rod 91 brought about by the throw 54 of the cam 52. The short throw of the rod 91, or the throw that takes place while the sheet of paper is passing from the cylinder to the delivery fingers 3, while sufficient to bring the shoulder 146 in front of the pin 145 (Fig. 4) is not sufficient to bring the hook-shaped member 101 below the end of the plate 4, so that at this operation the hook-shaped member 101 does not move forward far enough to drop between the tongues 5ª. If for any reason the sheet of paper 16 is not at the guide-plate 9 at the proper time, the hook-shaped member 101 will drop in a slot 5 in the tongue 5ª, (see Fig. 11), thus bringing its shoulder 102 in the path of the lip 129 of the sheet trip-finger, and upon the reverse movement of the sheet detector-finger 100 the sheet trip-finger will be pulled to the rear, or to the position shown in Fig. 10, thus turning the shaft 122 in a direction opposite to that of the hands of a watch, and against the tension of the spring 150, operating the crank 131, levers 133 and 134, raising the pin 40, permitting the spring 36 to throw the bar 35 to the left, as in Figs. 1, 5, 6, 7, and 10, operating the brake-switch, tripping the cylinder, operating the brake and stopping the machine.

Referring now to the buckling feature of

the machine, as long as the sheets are delivered from the cylinder upon the delivery fingers 3 properly, the buckling detector-fingers remain inactive, (see Fig. 7). If, for any reason, however, the sheets do not deliver properly at this point, as shown in Fig. 4, this buckling action of the sheet engages one or more of the springs or arms 178, raising them, thereby turning the shaft 170 and throwing the levers 171 to the rear, (see Fig. 4). This action moves the bar 173 rearwardly (Fig. 4) dropping the roll-pin 163 down out of engagement with the buckling-hook 140, and dropping it in the path of and in position to engage the pin 147 of the lever 148, so that upon the reverse motion of the buckling-hook the lever 148 will be pulled to the right (Fig. 4) turning the shaft 122 in the direction opposite to that of the hands of a watch, thereby operating the crank 131, the levers 133 and 135 lifting the detent pin or rod 40 to the position shown in Fig. 10, and thereby operating the trip, brake, and cutting off the power. It will be seen that the buckling detector-fingers and sheet detector-fingers act independently of each other to bring about the operation of the lever 148 upon the happening of the conditions stated. The unequal movements given to the shaft 60 permits a sufficient operation of the buckling-hook 140 to be engaged by the pin 147 at both movements; the longer movement permitting the positioning of the hook-shaped member 101 to the point shown in Fig. 9, at the time when a sheet 16 should register at the guide plate 9, and the shorter movement of said part 101 occurring at the time when a sheet 16 is being delivered upon the delivery fingers 3, such short movement being sufficient to permit the shoulder 146 of the buckling-hook 140 to pass beyond the pin 147 on the lever 148. At this time the hook-shaped member 101 does not pass beyond the end of the plate 4, so that there is no liability of the machine being stopped by the sheet detector-finger at the time of the delivery of the sheets from the cylinder.

It will be noted that the lip 129 on the bar 127 that is engaged by the shoulder 102 and the detector-finger 100 is entirely distinct and independent from the pin 147 and the lever 148 that are operated by the buckling-hook 140. The lip 129 being flat, after said lip is drawn back sufficiently to give the desired movement to the rod 40, the right hand edge of said lip by its engagement with the under side of the trip-finger, will raise the shoulder 102 out of engagement with the left hand edge of the lip (see Fig. 11), thus permitting the lip 129 to return to its initial position, and also serving to lift the end 101 clear of the rear wall of the slot 5.

Having thus explained the nature of my invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made, or all of the modes of its use, what I claim and desire to secure by Letters Patent is:—

1. In a printing-machine, a press-guide, a sheet-handling mechanism, automatic means for stopping the machine upon the failure of the machine to present a sheet at said guide, automatic means for stopping the machine upon the buckling of a sheet being delivered from the cylinder, and provisions whereby the first mentioned means are rendered inactive during the delivery of the sheet from the printing cylinder.

2. In a printing-machine, a press-guide, an impression cylinder, an automatic stop or release, means for maintaining said stop inactive, a device connected to said means and adapted to be rendered inoperative by a sheet of paper at said guide, and a part connected to said means adapted to be operated by the buckling of a sheet of paper, at the delivery fingers.

3. In a printing-machine, a press-guide, an impression cylinder, an automatic stop or release, means for holding said stop inactive, a device connected to said means and adapted to be rendered inoperative by a sheet of paper at said guide, a part connected to said means adapted to be operated by the buckling of à sheet of paper at the delivery fingers, and provisions whereby said device is rendered inoperative when a sheet of paper is passing said part.

4. In a printing-machine, a press-guide, an impression cylinder, an automatic stop, means for holding said stop inoperative, a finger connected to said means adapted to be moved to said guide at predetermined times, and to drop through a slot, unless prevented by a sheet of paper, a second finger connected to said means arranged at the delivery side of the cylinder, and adapted to be operated by the buckling of a sheet of paper.

5. In a printing-machine a press-guide, a slidable bar, connected to the trip-levers of the press, a spring for moving said bar in one direction, a stop arranged to engage the end of said bar and hold the latter against the tension of said spring, a normally stationary lever, connected to said stop and carrying a lip, and a reciprocating finger, the end of which is adapted to engage a sheet of paper at said guide, said finger being arranged to slide on said lip, and being formed with a shoulder, arranged to engage said lip to rock said lever, when the end of said finger is not sustained by a sheet of paper at said guide.

6. In a printing-machine, an automatic trip mechanism, a stop for holding said mechanism inactive, normally stationary mechanism connected to said stop, and a reciprocating finger, the end of which is

arranged to engage a sheet of paper at the press guides, and means upon said finger adapted to operate said last-mentioned mechanism when said finger is not sustained by a sheet of paper at the press guides.

7. In a printing-machine, a press-guide, an automatic trip mechanism, a stop for holding said mechanism inactive, a reciprocating finger, the end of which is arranged to be sustained by a sheet of paper at said guide, normally stationary means connected to said stop, comprising a part, over which said finger slides, a member upon said finger arranged to engage said part, when said finger is not sustained by a sheet of paper at the press-guides, said part being arranged to lift the member of said finger clear of said part, after the latter has been drawn back a predetermined distance.

8. In a printing-machine, an automatic trip mechanism, a stop for holding said mechanism inactive, a pivoted buckling finger, arranged adjacent the guide-fingers of the press, normally stationary means connected to said stop and provided with a pin, a reciprocating hook, arranged to engage the said pin to operate said stop, and means controlled by said finger arranged to support said hook clear of said pin, except when said finger is lifted by the buckling of a sheet.

In testimony whereof I have affixed my signature, in presence of two witnesses.

BERNHARD GUSTAFSON.

Witnesses:
WILLIAM QUINBY,
H. L. ROBBINS.