

No. 663,672.

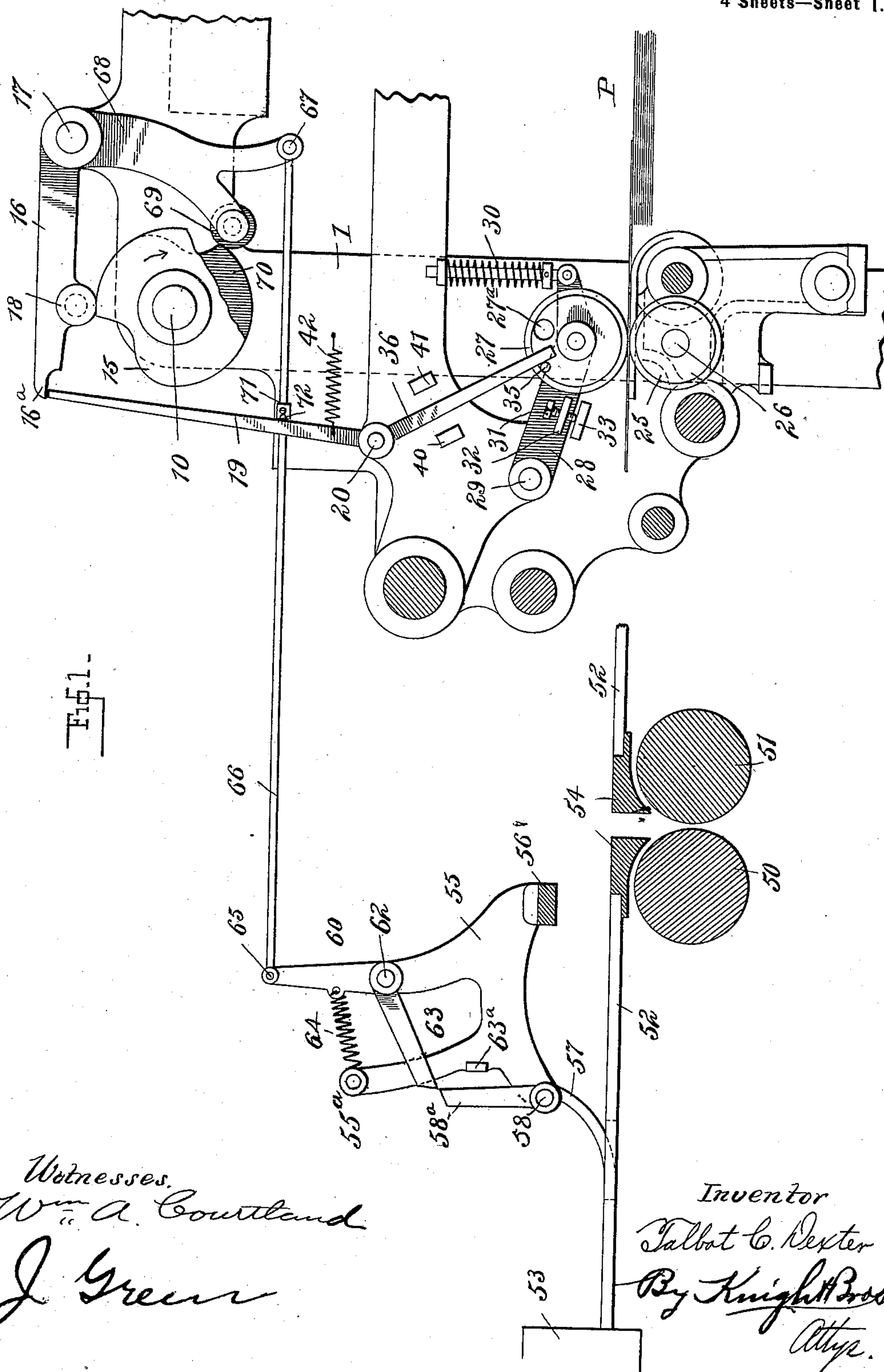
Patented Dec. 11, 1900.

T. C. DEXTER.
PAPER FEEDING MACHINE.

(Application filed Mar. 31, 1900.)

4 Sheets—Sheet 1.

(No Model.)



Witnesses.
Wm. A. Courtland
J. Green

Inventor
Talbot C. Dexter
By Knight Bros.
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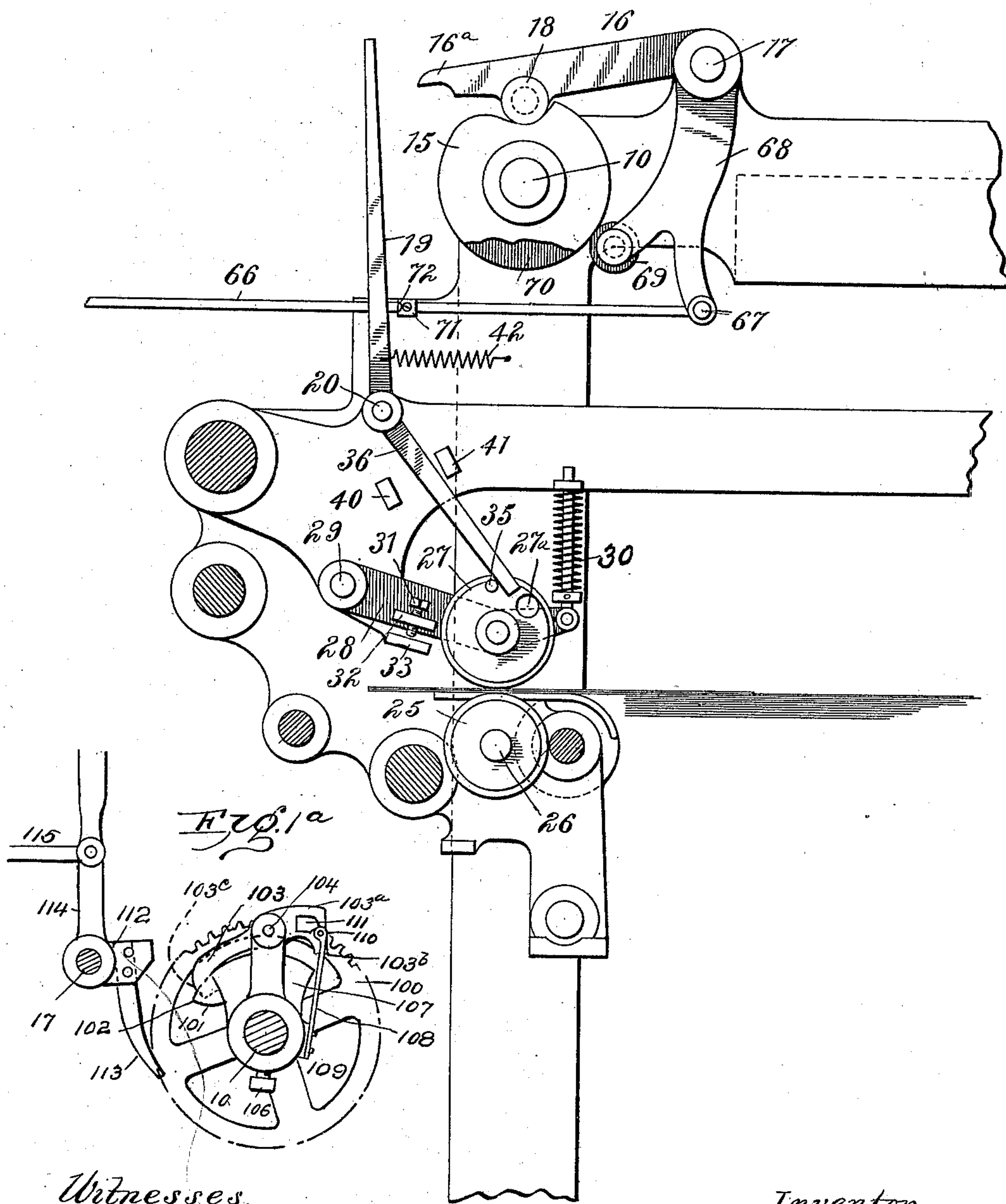
T. C. DEXTER.
PAPER FEEDING MACHINE.

(No Model.)

(Application filed Mar. 31, 1900.)

4 Sheets—Sheet 2.

Fig. 2.



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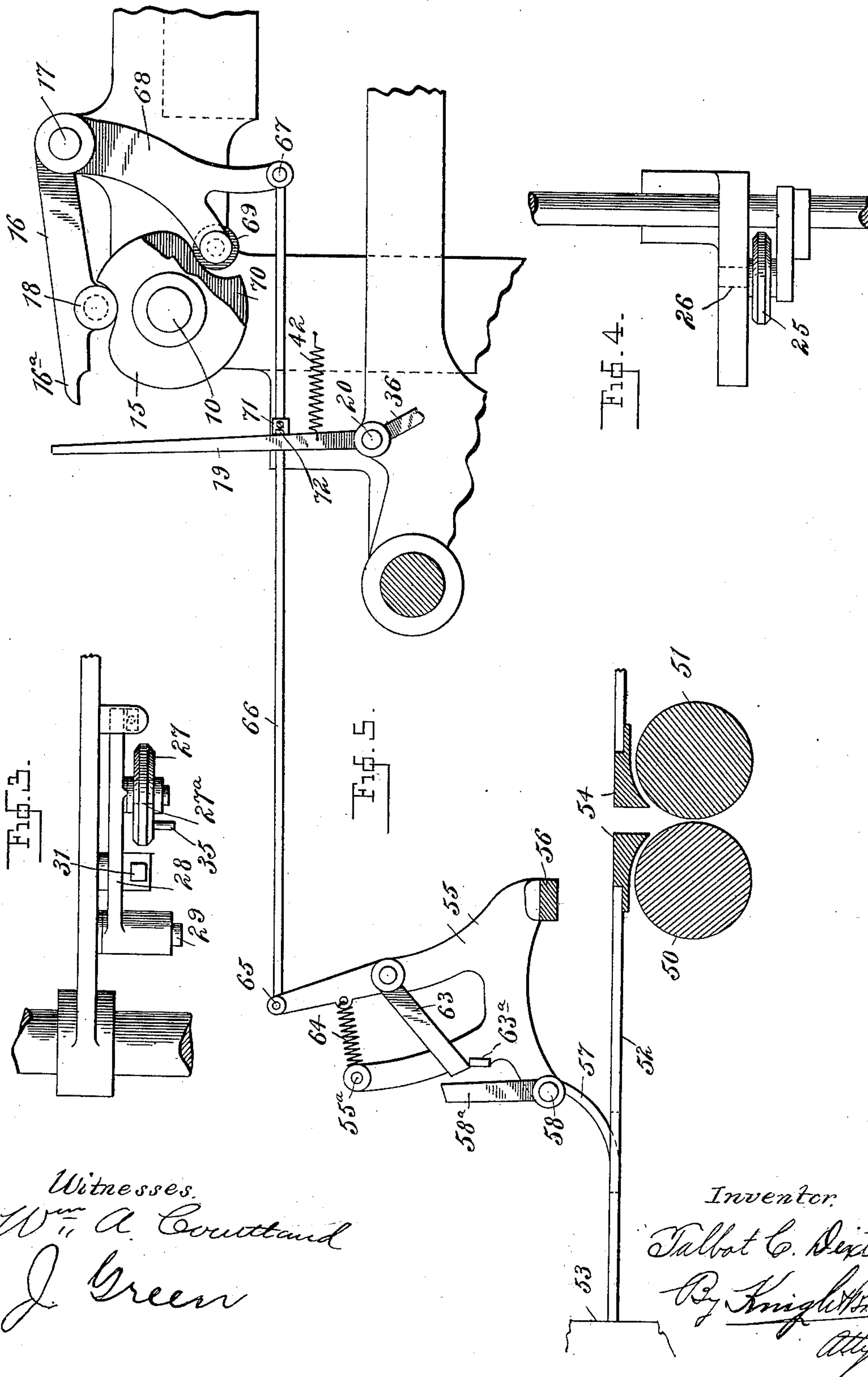
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(Application filed Mar. 31, 1900.)

(No Model.)

4 Sheets—Sheet 3.



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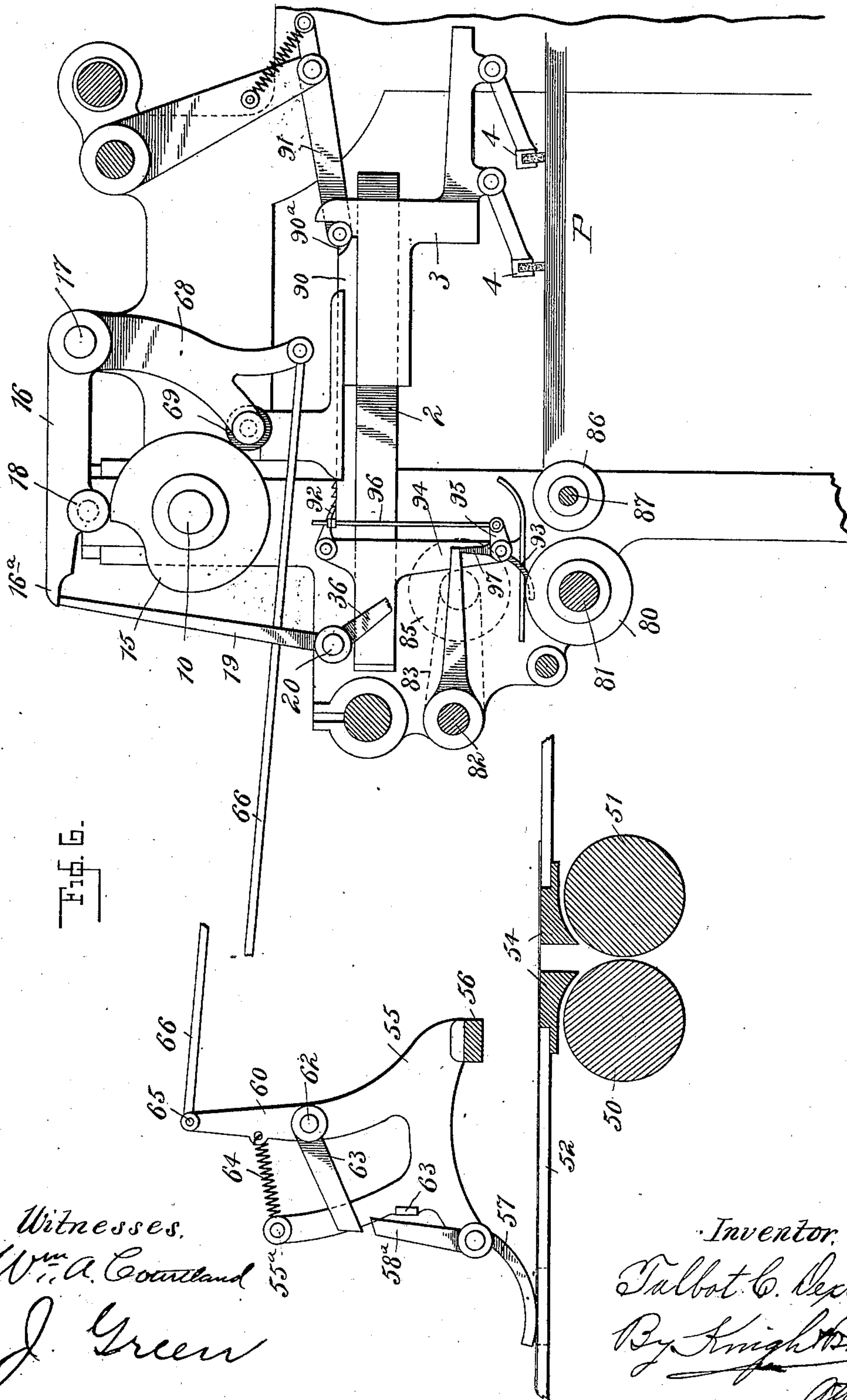
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(Application filed Mar. 31, 1900.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses,
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UNITED STATES PATENT OFFICE.

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

PAPER-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 663,672, dated December 11, 1900.

Application filed March 31, 1900. Serial No. 10,922. (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.

In paper-feeding machines, folding-machines, ruling-machines, printing-presses, and other machines designed to operate upon sheets of paper as now commonly constructed there is a great waste of paper due to the inaccurate feeding of the sheets through or from the machines. Steps have heretofore been taken to avoid part of this waste by providing automatic throw-out mechanisms which will arrest the operation of the machines in case two or more sheets are fed forward at the same time, and these throw-out mechanisms have accomplished their object. Examples of such machines are found in Patent No. 623,770, granted to me April 25, 1899, and in my allowed application, Serial No. 731,203, filed September 21, 1899, both for improvements in paper-feeding machines.

One of the objects of my present invention is to provide a simple and effective mechanical sheet-calipering device which is adapted to accurately gage the thickness of sheets passing through the machine and operate a throw-out mechanism for arresting the feeding machine when an abnormal thickness of sheets passes.

The novelty in this part of my present invention consists in providing a normally stationary rotatable calipering device which engages and operates a suitable lever controlling a throw-out mechanism. In the normal operation of the machine said rotatable calipering device is not affected; but the moment an abnormal thickness of sheets engages it, as in the case of two sheets passing from the machine at the same time, it will be rotated sufficiently to actuate the lever for releasing the throw-out mechanism, which arrests the operation of the feeding-machine. Such caliper-controlled throw-out mechanisms effectively offset the difficulties arising from the movement of two sheets at a time from the feeding-machine, but do not overcome the objectionable inaccuracies in the movements

of single sheets from the feeding-machine. Many devices have been produced to insure the accurate operation of feeding mechanisms, and such devices have been successful in improving the operation of the machines; but on account of the varying characteristics of different grades of paper it is very difficult to produce a feeding-machine which will operate with unvarying accuracy. I have sometimes supplemented the feeding mechanisms of my feeding-machines with automatically-controlled means to prevent the feed of the sheet from the machine when the sheet is not carried forward evenly and squarely from the pile, such a mechanism being covered by my allowed application, Serial No. 684,471, filed June 25, 1898, for improvements in paper-feeding machines. This mechanism comprises two tripping devices arranged transversely of the pile of sheets in position to be actuated by the leading edge of the sheet and adapted to prevent the operation of the sheet-delivery mechanism until they are both tripped at the same time by the leading edge of the sheet coming into registered position—that is, squarely across the machine. If a sheet does not reach registered position on one stroke of the feeding devices, the delivery mechanism is held out of operation until the next stroke of the feeding devices, which being also automatically controlled by the movement of the sheet will correct the position of the sheet, so as to allow the delivery mechanism to operate. The operation of the automatically-controlled sheet-feeding devices and sheet-delivery mechanism is satisfactory in a majority of cases; but there is one objectionable condition of the sheets encountered at times which the said mechanisms cannot successfully overcome—viz., the sheets with turned-over corners at the leading edge. The delivery mechanism of the printing-press will very often cause the corners of the sheets to be turned over in piling the sheets upon the delivery-platform, and sometimes the corners will be turned back as much as ten or fifteen inches. When a sheet having one of its forward corners bent back is fed forward in the feeding-machine, the tripper at the side of the bent-back corner will not ordinarily be operated on the first stroke of the feeding-off instruments, and

consequently the sheet-delivery mechanism will be held out of operation by the tripper at that side until the completion of the following stroke of the feeding-off instruments, one of which will push forward the bent-back portion of the sheet sufficiently to actuate the tripper, which arrests the feed instrument at that side and releases the delivery mechanism. The sheet will then be presented at an angle to the delivery mechanism and will be carried from the pile in this position to become rumpled up in the folder, causing a choke-up and the destruction of all the sheets which rapidly follow it from the feeder. Such an accident frequently destroys from six to a dozen sheets, or if the corner of the sheet is not turned back far enough to prevent the accurate register of the leading edge of the sheet and the sheet is passed from the feeder in proper position there is still great danger of the sheet having the turned-back corner engaging some part of the folder and causing trouble, as it is very rare that a sheet with a turned-over corner can be passed through the folding-machine without causing a choke-up. Furthermore, sheets which are fed from the feeding-machine in some cases do not lie flat in passing to the folder and are easily caused to curl up, producing a choke-up in the folder. This is particularly true when running light paper. In fact, I have found that in the practical operation of paper-folding machines by far the greatest number of interruptions to the sheets occur before the sheets reach registered position above the first fold-rollers.

Another object of my present invention is to obviate the objectionable choking of the folding-machine, ruling-machine, or other machine to which the sheets are fed by the feeding-machine; and to this end my invention consists, further, of an improved device adapted to be applied to a folder or other machine to which the sheets are to be fed from the feeding-machine which is adapted to detect the absence or improper position of a sheet and through its connection with a throw-out mechanism arrest the operation of the feeding-machine to prevent the feeding forward of a second sheet until the inaccuracy is remedied. The simplest form of this device comprises a tripping-finger supported in the path of the sheets and an intermittently-operated lever connected with the throw-out mechanism, the arrangement being such that when a sheet is moved into proper position in the folder or other machine the trip-finger will be actuated and caused to move into the path of said intermittently-operated lever to sustain the lever and prevent the operation of the throw-out mechanism; but in case a sheet fails to reach proper position in the machine said tripper will not be operated, but will remain in its normal inactive position and allow said lever to move for actuating the throw-out mechanism and arresting the operation of the feeding-ma-

chine. In combination with this detecting device of the folder or other machine to which sheets are fed I prefer to employ the device of my above-named application Serial No. 684,471 in the feeding-machine to prevent the feed of the sheet from the feeder to the folder when the sheet is started from the pile unevenly. With such a combination of devices the failure of a sheet to pass from the feeder at each revolution is immediately detected by the device on the folder and the machine brought to a standstill, allowing the operator to correct the error and preventing the passage of a sheet at an angle into the folder.

In order that my invention may be fully understood, I will first describe the same with reference to the accompanying drawings and afterward point out the novelty more particularly in the annexed claims.

In said drawings, Figure 1 is a detail longitudinal sectional elevation of parts of feeding and folding machines embodying my invention. Fig. 1^a is a detail view of the clutch operated by the caliper and sheet-detecting devices. Fig. 2 is a view similar to Fig. 1, illustrating the sheet-calipering device and part of the throw-out mechanism operated by it. Figs. 3 and 4 are detail plan views of the upper and lower members, respectively, of the calipering device. Fig. 5 is a view similar to Fig. 1, illustrating the folder attachment and its connection with the throw-out mechanism of the feeding machine. Fig. 6 is a view similar to Fig. 1, illustrating the combined use of the feeder-controlling device and the sheet-detecting device of the folding-machine.

The framework of my improved machine may be of any suitable construction to properly support the several mechanisms hereinafter referred to, and I will not specifically describe the same.

The pile P of paper to be fed to the folder, printing-press, ruling-machine, or other machine designed to operate upon the paper is mounted upon an automatically-adjustable table or platform which is intermittently elevated under the control of an automatic device in the manner well understood in the art.

The pile-supporting table, elevating-screws, and the automatic controlling device are not shown in the drawings, as they do not form any part of my improvements covered in present application.

1 indicates the main frame of the machine. 2 is a vertically-movable track-bar, upon which rides the feeder-carriage 3, provided with feed-fingers 4. The feeder-carriage and its operating mechanism may be constructed as illustrated and described in my allowed application filed September 21, 1899, Serial No. 731,203, for improvements in paper-feeding machines, or it may be of any other approved construction. The feed-fingers 4 are arranged to reciprocate above the pile P of sheets to feed the successive sheets from the pile to the

delivery mechanism, which preferably consists of the feed-rollers, journaled beneath the plane of feed, and the drop-rollers, journaled upon rock-arms keyed to a rock-shaft above the plane of feed. This mechanism is best illustrated in Fig. 6; but I would have it understood that my present improvements do not relate to any specific form of feed mechanism, but to the devices which control the operation of the feeding-machine and machines to which the sheets are fed therefrom.

10 is the main operating-shaft of the machine. This shaft is provided with suitable mechanism for intermittently raising and lowering the feeder-frame in accordance with the structure set forth in my above-named application Serial No. 731,203. This shaft also regulates the operation of the throw-out mechanism as set forth in said application, and I will now refer to this operation in its relation to the invention set forth in my present case.

15 is a cam keyed to the shaft 10, and 16 is a rock-arm keyed to a rock-shaft 17, journaled in the side frame of the machine. 18 is an antifriction-roller journaled upon the rock-arm 16 and operating upon the periphery of the cam 15. The rock-arm 16 has a forwardly-projecting nose 16^a, which normally rests above the upper end of the long lever 19, journaled to the machine-frame at 20. The rock-shaft 17 is operatively connected with any suitable throw-out mechanism arranged to arrest the operation of the machine when operated by the movement of the rock-shaft 17, caused by the dropping of antifriction-roller 18 of rock-arm 16 into the depression or low portion of the controlling-cam 15. The structure of the clutch is hereinafter referred to.

25 is the lower rotary member of my improved sheet-calipering device, journaled in the machine-frame at 26 at the delivery end of the machine.

27 is the upper normally stationary rotatable member, journaled in a rock-arm 28, which in turn is journaled at 29 to the machine-frame. The free end of the rock-arm 28 has pivotally connected to it a spring device 30 for giving it a downward spring tendency.

31 is an adjustable limiting-screw threaded through a lug 32 of rock-arm 28 and engaging a rigid lug 33 of the machine-frame. By adjusting the screw 31 the relation of the upper calipering member to the lower member may be regulated to a nicety. The calipering member 27 is cut out at 27^a to make it lighter on its upper side than on its lower side, so it will gravitate to its normal operative position, as shown in Fig. 1.

Projecting from one face of the upper member 27 of the calipering device is a pin 35, which is adapted to engage an arm 36, projecting downwardly from and formed integral with the long lever 19.

40 and 41 are lugs for confining the movement of the rock arm or lever 19 36.

42 is a light spring for maintaining the lever 19 36 in normal position, the portion 19

of which in this position rests directly below the rock-arm 16 to prevent it from dropping when the low part of cam 15 passes, while the lower portion 36 of which rests just in front of the pin 35 upon the upper member 27 of the calipering device.

By means of the adjustment above described the upper member of the calipering device is arranged just far enough away from the lower member to allow the free passage of a single sheet of paper between the members. With the mechanism so adjusted it will be clear that should two sheets be started forward from the pile at the same time the abnormal thickness of the two sheets passing between the upper and lower members of the calipering device will produce a sufficient frictional engagement between the passing sheets and the upper device to cause the upper member 27 to rotate upon its journal in the arm 28, and as the pin 35, carried by the member 27, is just in the rear of the arm 36 said arm 36 will be moved forwardly upon its journal, causing the arm 19 to be withdrawn from beneath the rock-arm 16, leaving no support for rock-arm 16 excepting the engagement of the antifriction-roller 18 with the periphery of the cam 15. Immediately after the parts have been moved to this position the low portion of the cam 15 reaches the antifriction-roller 18, and said antifriction-roller drops into the low portion of the cam, causing the shaft 17 to be rocked and the throw-out mechanism to be actuated. In this way the passage of two sheets from the feeder will arrest the operation of the feeder before the sheets are able to travel very far.

Much trouble has been produced in folding-machines as now commonly constructed by reason of the failure of a sheet to reach accurate registration position before the operation of the folding-blade, in some cases the sheet being so far off that the blade of the folder will not carry it through, but will simply choke up the machine, causing all succeeding sheets which are passed from the feeder before the machine is stopped to be destroyed. To obviate this defect, I provide a device in the folding-machine which will detect the absence or inaccurate position of a sheet and through suitable intervening mechanism will operate the throw-out mechanism to arrest the feeding mechanism.

50 and 51 indicate folding-rollers; 52, the ordinary metal bars over which the sheets pass to the folder; 53, the end guide, which arrests the sheet in registered position, and 54 the slotted plate above the folding-rollers 50 and 51, through the slot of which the folding-blade operates.

55 is a bracket mounted upon bar 56, and 57 is a trip-finger journaled to bracket 55 at 58 and extending down into the plane of feed of the sheets between two of the bars 52.

58^a is an upwardly-projecting heel of the finger 57 for the purpose which will presently appear.

60 is an intermittently-operated rock-arm journaled at 62 and having a forwardly-projecting arm 63, which extends over adjacent to the upper end of the heel 58^a.

5 64 is a spring connecting rock-arm 60 with bracket-arm 55^a and tending to move the rock-arm 60 and its connected arm 63 upon their journal 62. Pivotaly attached to the rock-arm 60 at 65 is a rod or bar 66, which
10 extends rearwardly to the paper-feeding machine and has its rear end pivoted at 67 to a rock-arm 68, which is journaled upon the rock-shaft 17, so as to move independently of the rock-shaft.

15 69 is an antifriction-roller journaled upon the rock-arm 68 and operating upon the periphery of a cam 70, keyed to the main shaft 10, adjacent to the cam 15 above referred to.

20 71 is an adjustable bracket secured to the rod 66 and formed with a finger 72, which projects into engagement with the rear edge of the long lever 19.

It will be observed that when a sheet fails to reach the gage 53 of the folder the trip-finger 57 will remain in its normal inactive position, as shown in Fig. 1, in which position the heel 58^a is out of reach of the arm 63. When the parts are in this position and the low portion of cam 70 reaches antifriction-roller 69, the spring 64 will draw the rock-arm 60 forward, moving rock-arm 63 downwardly into engagement with stop 63^a, the forward movement of rod 66 causing finger 72 to engage lever 19 and move it out from
25 under the rock-arm 16. The low portion of cam 15 immediately thereafter reaches the antifriction-roller 18, allowing rock-arm 16 to drop to rock the shaft 17 and operate the throw-out mechanism. The absence of a sheet
30 from the folder will in this way arrest the operation of the machine, giving the operator time to correct any inaccuracies which must have occurred.

In combination with the mechanism just
45 described for arresting the operation of the feeding-machine in case a sheet fails to reach proper position in the folder I propose to employ a sheet-detecting device in the feeding-machine which will arrest the operation of
50 the sheet-delivery mechanism of the feeder when the feeding-off mechanisms have not started a sheet from the machine with proper accuracy. Such a mechanism is illustrated, described, and claimed in my allowed appli-
55 cation, filed June 25, 1898, Serial No. 684,471, for improvements in paper-feeding machines. This mechanism comprises, essentially, two sets of sheet-detecting devices arranged transversely of the feeding-machine and independently controlling the action of the feeding-off
60 devices and delivery mechanism, so that in case a sheet of paper starts forward unevenly the feeding-off devices at one side of the machine will be thrown out of operation prior to
65 those at the opposite side of the machine, giving the latter time to partially, if not wholly,

correct the position of the sheet. If the position of the sheet is too far off to be corrected by the automatically-controlled feeding-off devices, the sheet-delivery mechanism will be
70 held out of operation by one of said devices, thereby preventing the movement of the sheet from the machine until the following operation of the feeding devices.

It sometimes occurs in piling sheets delivered from the printing-press that the corners of the sheets are turned over some distance back. In feeding sheets with such turned-over corners the sheet-detecting device of the feeding-machine may engage one of the
75 turned-over portions of a sheet, and thus register the sheet inaccurately on its second stroke. It is in such a case that the importance of the combination with such feeder sheet-detecting devices of the improved sheet-
80 detector in the folding-machine is greatest, for while the feeder takes two strokes to get such a sheet into such position that it will be fed from the machine the detecting device of the folder has detected the absence of the
85 sheet which should have left the machine upon the first stroke of the feeding-off devices and in the manner above described has arrested the operation of the feeder. In this way the choking up of the machine is avoided
90 and the number of sheets wasted is minimized.

Referring now to Fig. 6, 80 is one of a series of lower delivery-rollers keyed upon a constantly-rotating shaft 81, journaled in suitable bearings in the machine and driven
100 by any suitable means. (Not shown.) 82 is a transversely-extending rock-shaft supporting rock-arms 83, in the free ends of which are journaled rollers 85. The drop-rollers 85 operate in conjunction with lower rollers 80
105 for delivering the sheets from the machine. The lower rollers 80 are constantly driven by suitable gearing with the main shaft of the machine, and the drop-rollers 85 are intermittently lowered and elevated into and out of
110 peripheral contact with the rollers 80 in a manner well understood, so that the forward edges of the sheets will be gripped between the upper and lower rollers and fed rapidly
115 from the machine. The upper rollers are rotated by their engagement with the lower rollers or the sheet supported upon the lower rollers.

86 represents one of a series of milled or knurled wheels or rollers keyed to a constantly-driven shaft 87 and supported there-
120 by at the forward edge of the pile of sheets.

90 is a rack-bar mounted upon feeder-carriage 3 and formed with a rear cam end 90^a, which rests under the operating-arm 91.
125

92 is a pawl adapted to engage the rack-bar and cause it to release the carriage from its operating-arm. 93 is a tripping-finger journaled to bracket-arm 94 and having its lower end projected across the plane of feed and
130 below the periphery of one of the lower feed-rollers 80. The tripping-finger 93 is formed

with a heel 95, to which is pivoted the lower end of the upwardly-projecting rod 96, which engages the pawl 92 and controls it.

97 is an upwardly-projecting arm or shoulder of the tripping-finger 93, which is supported normally in position to engage the forward end of a rock-arm 84, keyed to the rock-shaft 82 and projecting rearwardly therefrom. When the tripping-finger 93 is in normal position in the path of the sheets, with the arm or shoulder 97 in engagement with the arm 84, it will be observed that the drop-rollers 85 will be held in elevated position.

It will be clear that two sets of sheet-feeding mechanisms and sheet-actuated controlling devices are to be used, as explained in my above-named application, reference to which may be made for a detailed explanation of the parts.

As has been already stated, the novelty of the main part of my invention consists in providing a normally stationary rotatable calipering device which engages and operates a suitable lever controlling a throw-out mechanism. I would have it understood that I intend to claim, broadly, the combination of a throw-out mechanism with a rotatable sheet-calipering device and a lever actuated by the calipering device and adapted to operate or control the operation of the throw-out mechanism. It is immaterial to the scope of my invention whether the caliper-operated lever engages an arm to normally prevent the operation of the throw-out mechanism, as illustrated in the drawings accompanying this application, or controls the operation of the throw-out mechanism through the medium of some other device. The essence of this part of the invention which I claim to be broadly new is the combination of some suitable throw-out mechanism adapted to arrest the operation of the machine, a rotatable sheet-calipering device, and a lever adapted to be operated by the rotatable calipering device and in some way cause or allow the operation of the throw-out mechanism.

By the expressions "sheet-receiving machine" and "machine adapted to receive sheets from the feeding-machine" employed in some of the claims I refer to the folder, printing-press, ruling-machine, or other machine to which sheets are fed by the feeding-machine.

Any suitable form of clutch mechanism may be employed for arresting the operation of the machine under the control of the sheet-calipering mechanism or sheet-detecting device. I have illustrated in Fig. 1^a and will now describe the clutch mechanism illustrated and described in my above-named allowed application Serial No. 731,203.

Upon the end of shaft 10, outside of the side frame of the machine, is freely journaled a main power-gear 100, having attached to or formed integral with it one member of the automatic clutch. This member of the clutch

on gear 100 is shown in the form of a cam-shaped shoulder 101, having a notch 102 for the engagement of the clutch-dog 103. The dog 103 is journaled at 104 to an arm 105, which is adjustably secured to the shaft 10, outside of gear 100, by means of a tap-bolt 106. Formed integral with an arm 105 is a plate or flange 107, for the purpose presently to be explained. 108 is a spring-arm secured to shoulder 109 of arm 105 and having journaled to its free end a small antifriction-roller 110, which is adapted to engage the angular faces of the lug 111, attached to or formed upon the face of the rear portion of dog 103, to hold the dog in engaged or disengaged position.

Keyed to the end of rock-shaft 17 is a clutch-operating arm 112, formed with a depending finger 113, which arm and finger are supported in the same longitudinal plane with the clutch-dog 103. Keyed to the rock-shaft 17, inside the side frames of the machine, is one or more operating rock-arms 114, to one of which may be connected an operating-rod, such as 115, extending forward or backward to a convenient point of operation. The rock-arms 114 are for returning the parts to normal operative position after the machine has been thrown out by the calipering mechanism.

When the rock-arm 16 drops, as above explained, the rock-shaft 17 will be rocked to throw arm 112 into engagement with the cam-surface 103^a of dog 103, thereby forcing the heel 103^b of said dog downwardly into engagement with the plate or flange 107, the nose 103^c of the dog being withdrawn from the notch 102 to release the main gear 100 and arrest the operation of shaft 10 and all the operating parts of the machine which are driven therefrom. When the dog is disengaged in this manner, the spring-arm 108 yields outwardly under the action of angular lug 111 upon antifriction-roller 110, causing said roller to disengage the under angular face of said lug and engage its upper angular face for holding the dog in disengaged position. When it is desired to start the operation of the machine, the rock-shaft 17 is rocked rearwardly by one of the hand-levers, causing finger 113 to engage the forward end of the dog 103 and force it downwardly until the nose 103^c rests upon the plate or flange 107, the spring-arm 108 operating as before to give the dog a spring tendency to move into engagement with the other clutch member. The continuously-rotating gear 100 brings the cam-shoulder 101 around into engagement with the nose of the dog and lifts it slightly till the dog springs into engagement with the notch 102 to again lock the clutch members together, when the machine immediately starts off.

By the expression "a normally stationary rotatable sheet-calipering device" used in the specification and claims I refer to the calipering device being normally stationary

against rotative movement and do not intend to limit myself to a calipering member which is stationary in any other way.

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

1. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a normally stationary rotatable sheet-calipering device adapted to be operated by an abnormal thickness of sheets, and a lever adapted to be actuated by said calipering device and, by its movement, to operate the throw-out mechanism, substantially as and for the purpose set forth.

2. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, with a sheet-calipering device comprising rotatable upper and lower members between which the sheets are adapted to pass, a pin carried by one of said rotatable members; and a lever arranged to be engaged and actuated by said pin and adapted to operate said throw-out mechanism, substantially as and for the purpose set forth.

3. In combination with a machine through which sheets of paper are passed, a suitable throw-out mechanism arranged to normally allow the operation of the machine and adapted when operated to arrest the operation of the said machine, of a normally stationary rotatable sheet-calipering device adapted to be operated by an abnormal thickness of sheets, and a lever arranged to be actuated by said rotatable calipering device and adapted to cause the operation of the throw-out mechanism, substantially as and for the purposes set forth.

4. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a normally stationary rotatable sheet-calipering device adapted to be actuated by the passage of an abnormal thickness of sheets, a lever adapted to be engaged and operated by said rotatable calipering device, and an arm connected with and operating said throw-out mechanism, said caliper-operated lever being normally in position to prevent the operation of said throw-out arm.

5. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, with a sheet-calipering device comprising rotatable upper and lower members between which the sheets are adapted to pass, an arm arranged to operate the throw-out mechanism, and a lever normally in position to sustain said throw-out operating-arm and adapted to be engaged by one of said rotatable calipering members and

be moved thereby away from said arm, substantially as set forth.

6. The combination, in a paper-feeding machine, of means for feeding sheets from the pile, suitable throw-out mechanism adapted to arrest the operation of said sheet-feeding means, a rock-arm connected with said throw-out mechanism for operating it, two rotatable sheet-calipering members arranged to allow the sheets of paper of normal thickness to pass between them, and a lever normally in position to sustain the throw-out operating-arm and arranged to be engaged and moved by one of the rotatable calipering members, substantially as set forth.

7. The combination in a paper-feeding machine, of suitable sheet-feeding devices, a throw-out mechanism adapted to arrest the operation of the sheet-feeding devices, an arm operatively connected with the throw-out mechanism, a lever normally in position to sustain said throw-out operating-arm, a pair of rotatable calipering members arranged adjacent to the plane of feed for the sheets to pass between them, means for regulating the space between the two calipering members, and means of engagement between one of said calipering members and said lever, substantially as set forth.

8. The combination in a paper-feeding machine, of suitable sheet-feeding devices, throw-out mechanism adapted to arrest the operation of the sheet-feeding devices, a sheet-calipering device comprising two rotatable members, one of which is mounted in rigid bearings while the other one of which is mounted in an adjustable frame, a spring device engaging said adjustable frame, suitable adjusting means for regulating the space between the two calipering members, and suitable means operated by one of said calipering members adapted to effect the operation of the throw-out mechanism, substantially as set forth.

9. The combination in a paper-feeding machine, of suitable sheet-feeding devices, a throw-out mechanism adapted to arrest the operation of the sheet-feeding devices, upper and lower rotatable sheet-calipering members between which the sheets pass, a spring-actuated frame, in which the upper calipering member is journaled, means for adjusting the position of said spring-actuated frame for regulating the space between the upper and lower calipering members, a pin carried by the upper rotatable calipering member, and a lever engaged by said pin and adapted to bring into operation the throw-out mechanism, substantially as set forth.

10. The combination in a paper-feeding machine, of suitable sheet-feeding devices, a throw-out mechanism adapted to arrest the operation of the sheet-feeding devices, rotatable upper and lower calipering members between which the sheets pass, a spring-actuated frame in which the upper calipering member is journaled, means for adjusting the po-

sition of said frame, a lever adapted to be engaged by said upper calipering member, a rock-arm operatively connected with the throw-out mechanism, a rotary cam normally engaging and sustaining said rock-arm, and a finger projecting from said rock-arm and adapted to be intermittently engaged and sustained by said lever when the calipering device is not operating, substantially as set forth.

11. The combination with a paper-feeding machine having suitable throw-out mechanism for arresting its operation, of a machine adapted to receive sheets from the feeding-machine, a sheet-actuated tripping device in the said sheet-receiving machine, an intermittently-operated device for actuating said throw-out mechanism, a rock-arm connected with said tripper and adapted to engage said intermittently-operated device to prevent the operation of the throw-out mechanism when the tripper is actuated, substantially as set forth.

12. The combination with a paper-feeding machine and suitable throw-out mechanism therefor, suitable intermittently-operated delivery mechanism, and a sheet-actuated tripping device arranged to normally prevent the operation of said delivery mechanism, and adapted when tripped by a sheet to allow the operation of said delivery mechanism, of a machine adapted to receive sheets from the feeding-machine, a sheet-actuated tripper in the said sheet-receiving machine, and means controlled by the receiving-machine tripper for operating the throw-out mechanism of the feeding-machine, substantially as set forth.

13. The combination with a paper-feeding machine and suitable throw-out mechanism therefor, suitable intermittently-operated delivery mechanism, and a sheet-actuated tripping device arranged to normally prevent the operation of said delivery mechanism, and adapted when tripped by a sheet to allow the operation of said delivery mechanism, of a machine adapted to receive sheets from the

feeding-machine, a sheet-actuated tripper in the sheet-receiving machine, an intermittently-operated device for actuating the throw-out mechanism, and a part connected with the receiving-machine tripper adapted to engage the intermittently-operated device and prevent its operation of the throw-out mechanism, substantially as set forth.

14. The combination with a paper-feeding machine having suitable throw-out mechanism for arresting its operation, of a machine adapted to receive sheets from the feeding-machine, a sheet-actuated tripping device in the said receiving-machine, a spring-actuated rock-arm, means connecting said rock-arm with the throw-out mechanism for actuating the latter, means normally restraining said spring-actuated rock-arm and intermittently releasing it, and a part connected with the tripper adapted to engage said rock-arm and prevent its operation when released by its restraining means, substantially as and for the purpose set forth.

15. The combination with a paper-feeding machine having suitable throw-out mechanism for arresting its operation, a rock-arm adapted to actuate the throw-out mechanism, and an arm or lever normally sustaining said rock-arm, of a machine adapted to receive sheets from the feeding-machine, a sheet-actuated tripping device in the said sheet-receiving machine, a spring-actuated rock-arm, a rod extending from said spring-actuated rock-arm and adapted to engage said arm or lever which normally sustains the throw-out operating rock-arm, means normally restraining said spring-actuated rock-arm and intermittently releasing it, and a part connected with the tripper adapted to engage a part connected with said spring-actuated rock-arm, substantially as and for the purpose set forth.

TALBOT C. DEXTER.

Witnesses:

J. GREEN,

WM. E. KNIGHT.