J. A. KACHA.

FEED MECHANISM FOR PRINTING PRESSES.

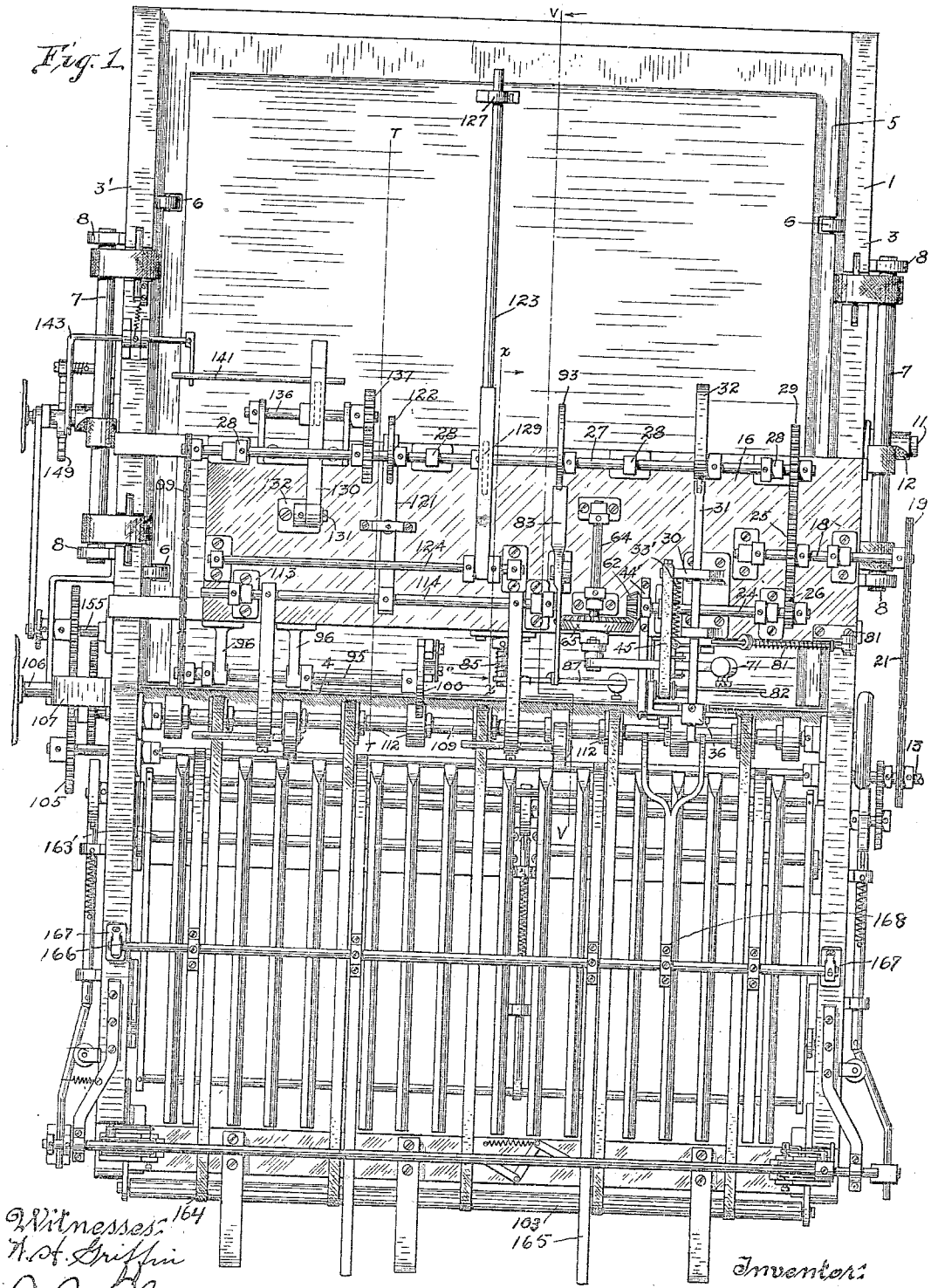
APPLICATION FILED MAR. 27, 1909.

953,840.

Patented Apr. 5, 1910.

10 SHEETS—SHEET 1.

Fig. 1.



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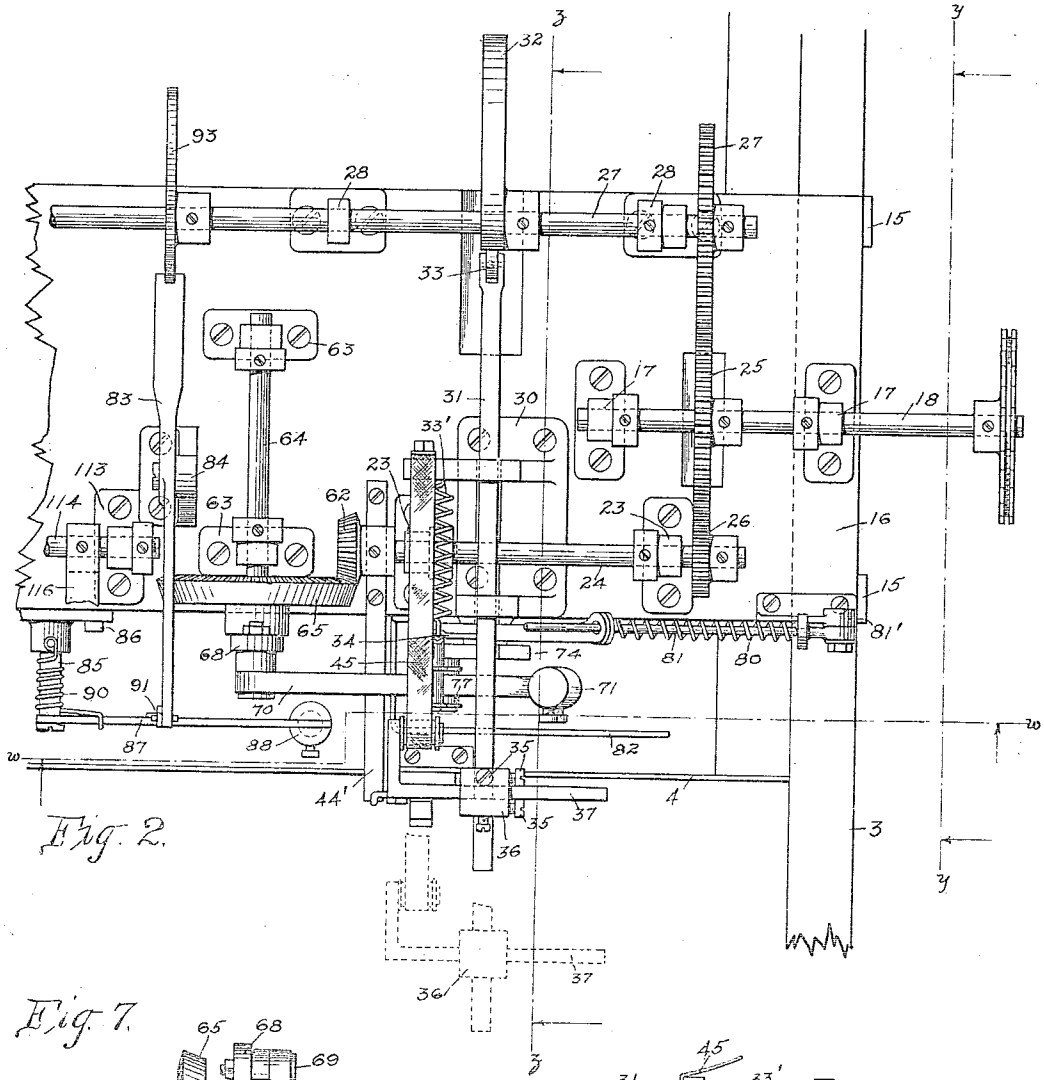


Fig. 2.

Fig. 7.

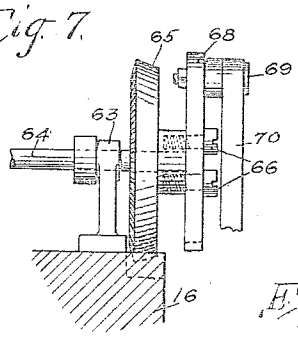


Fig. 8.

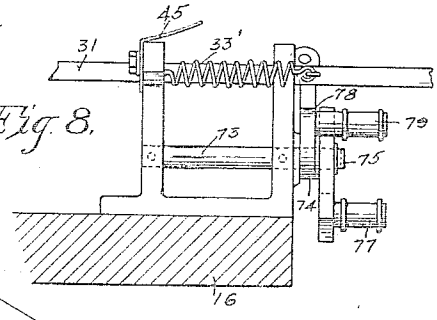
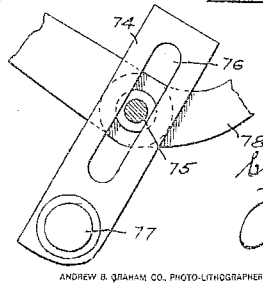


Fig. 9.



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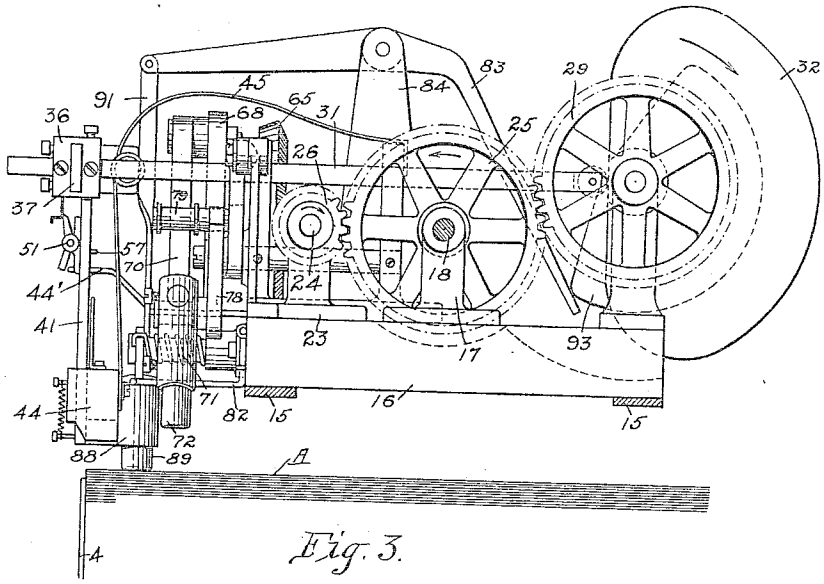
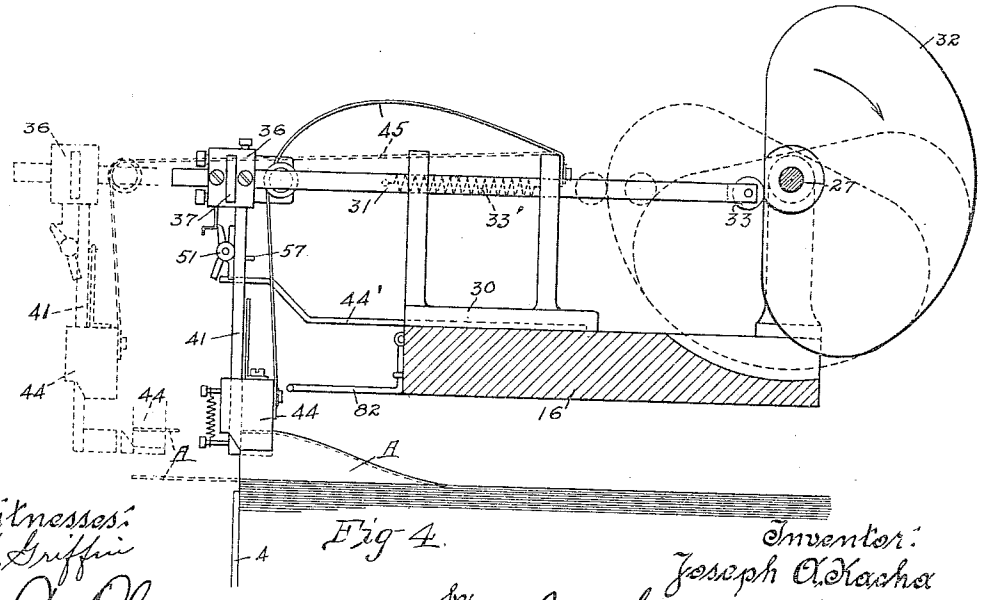


Fig. 3.



Witnesses:
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Fig. 4.

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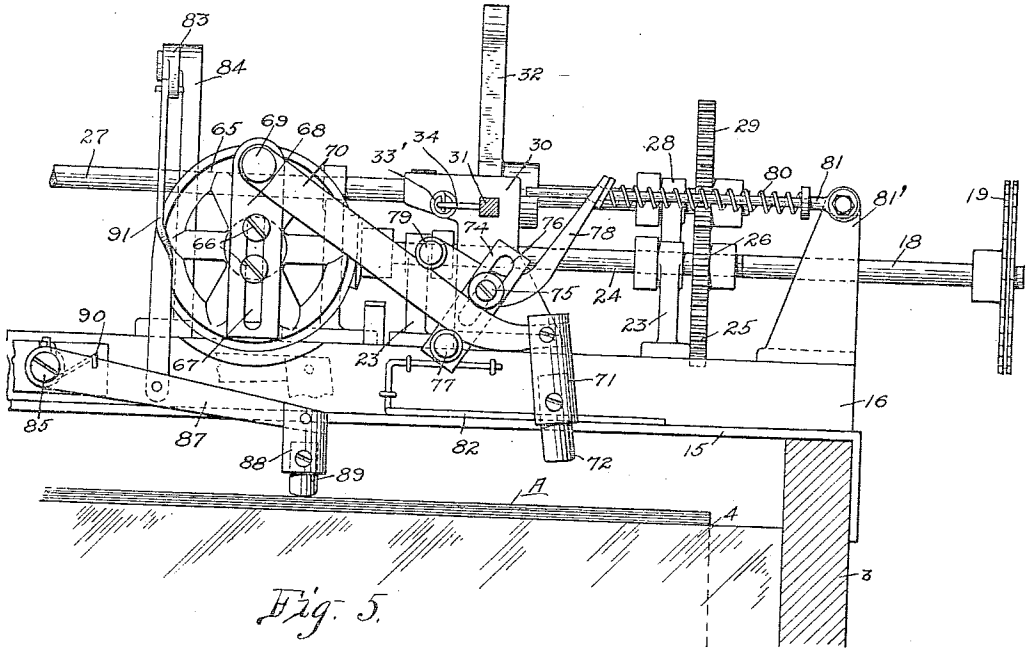

Fig. 5.

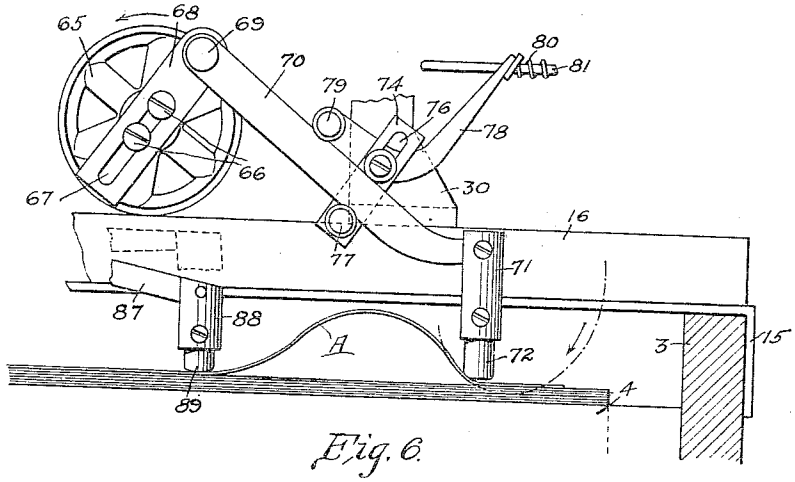

Fig. 6.

Witnesses:
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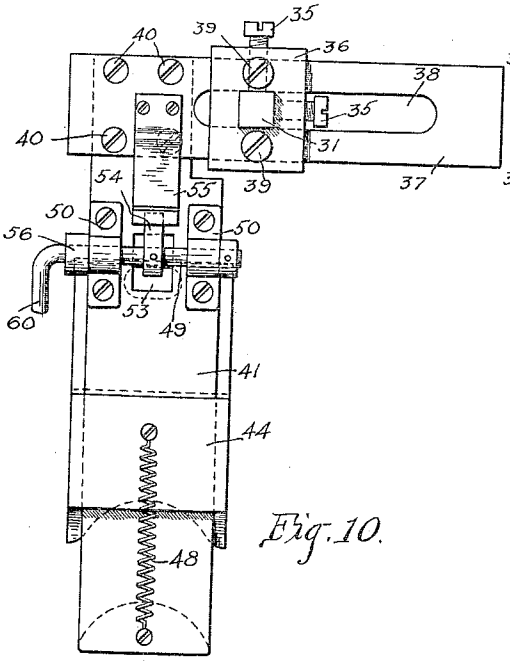

Fig. 10.

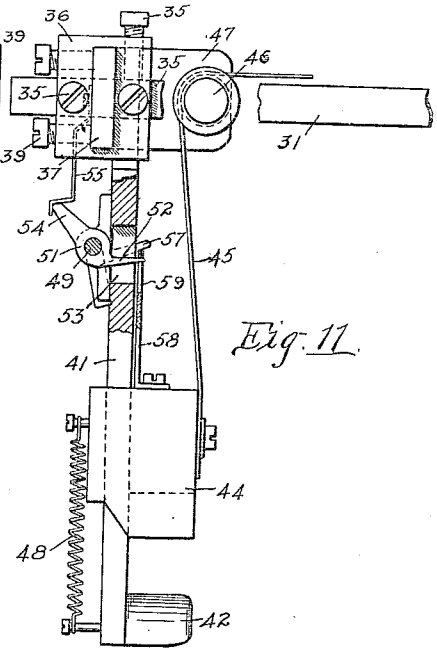

Fig. 11.

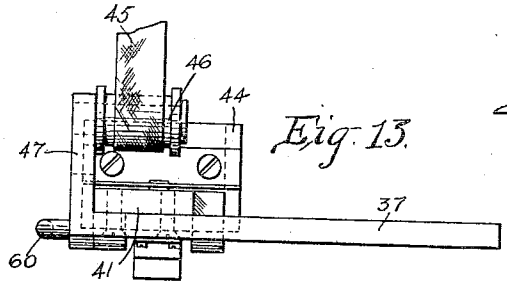

Fig. 13.

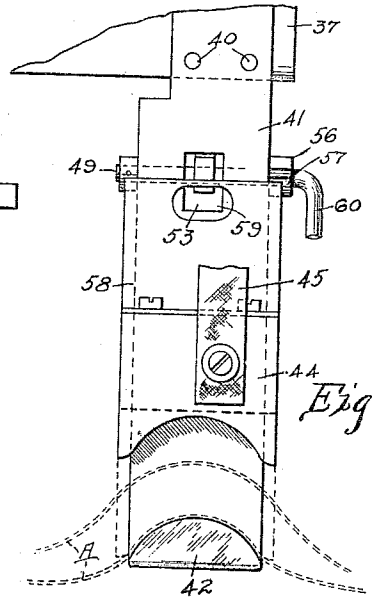

Fig. 12.

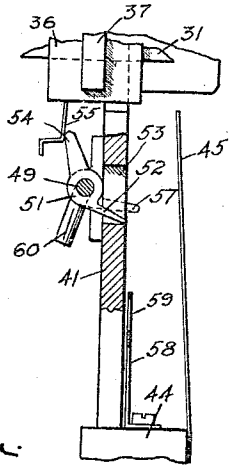

Fig. 14.

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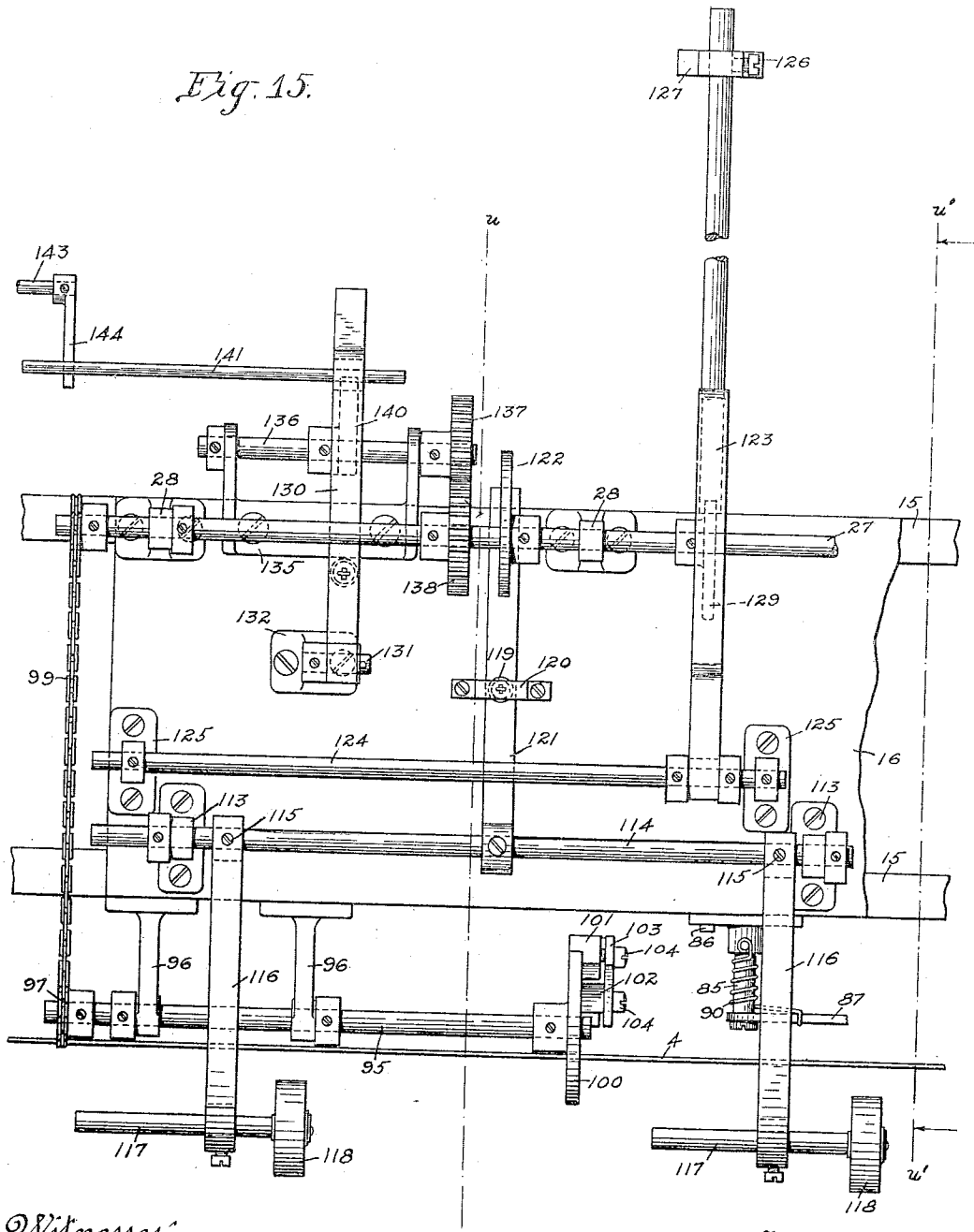
10 SHEETS—SHEET 6.

Fig. 15.



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Patented Apr. 5, 1910

10 SHEETS—SHEET 7.

Fig. 19.

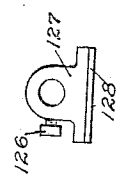

Fig. 20.

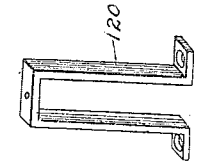

Fig. 18.

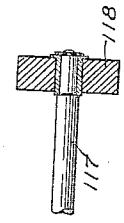

Fig. 17.

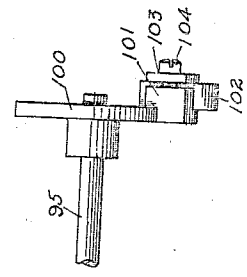

Fig. 16.

Witnesses:
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FEED MECHANISM FOR PRINTING PRESSES.

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10 SHEETS—SHEET 8.

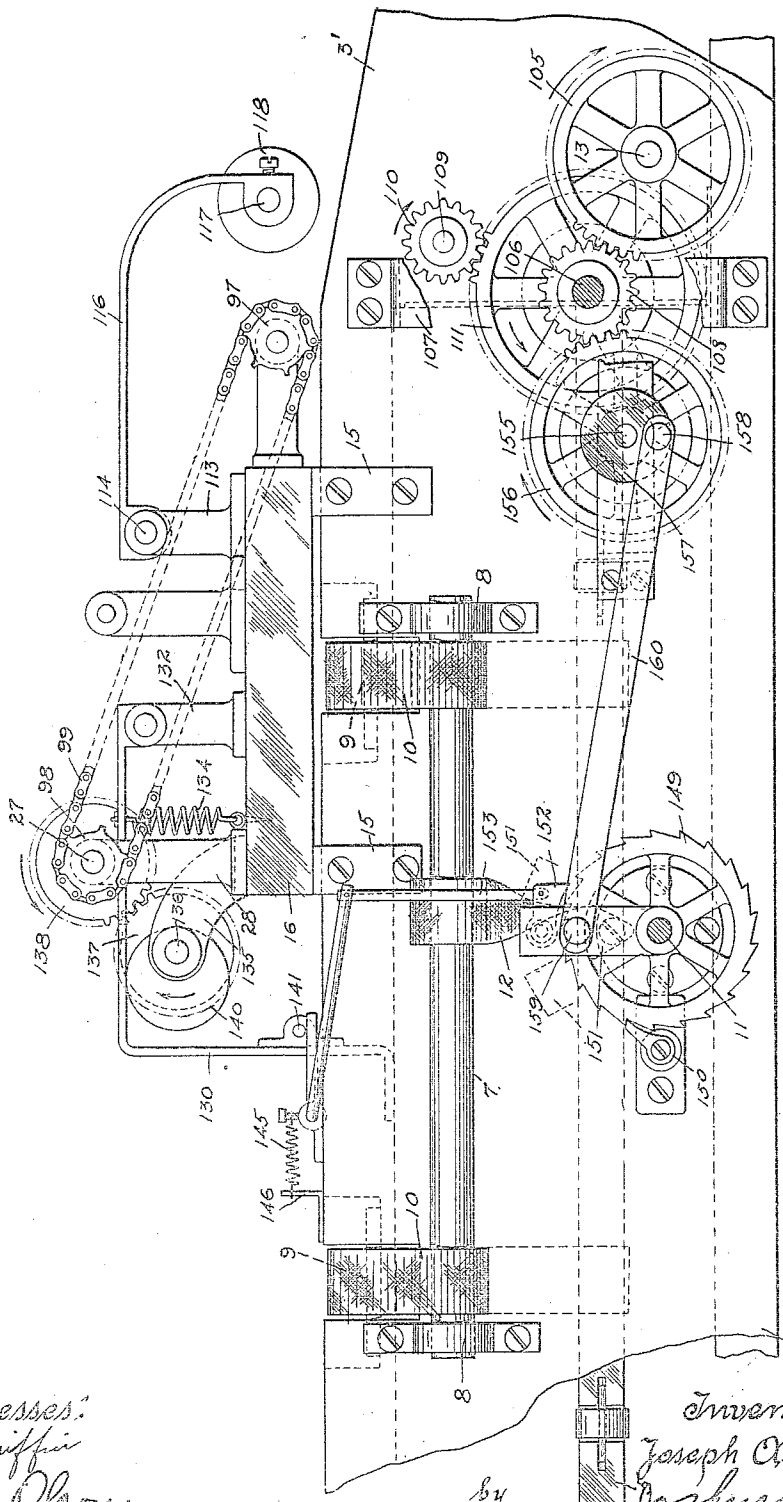

Fig. 21.

Witnesses:
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10 SHEETS—SHEET 9.

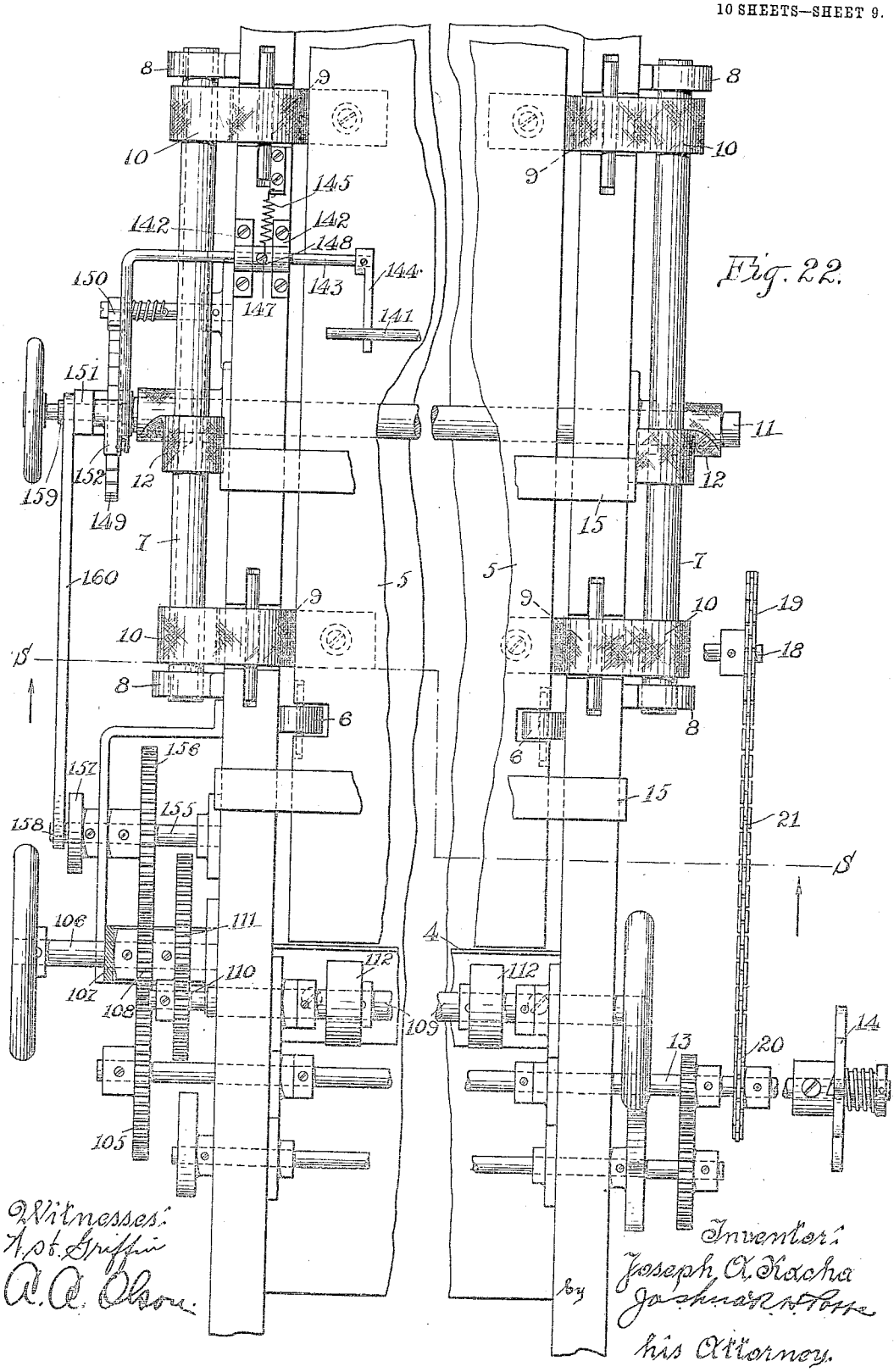

Fig. 22.

Witnesses:
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FEED MECHANISM FOR PRINTING PRESSES.

APPLICATION FILED MAR. 27, 1909.

953,840. Patented Apr. 5, 1910.

10 SHEETS—SHEET 10.

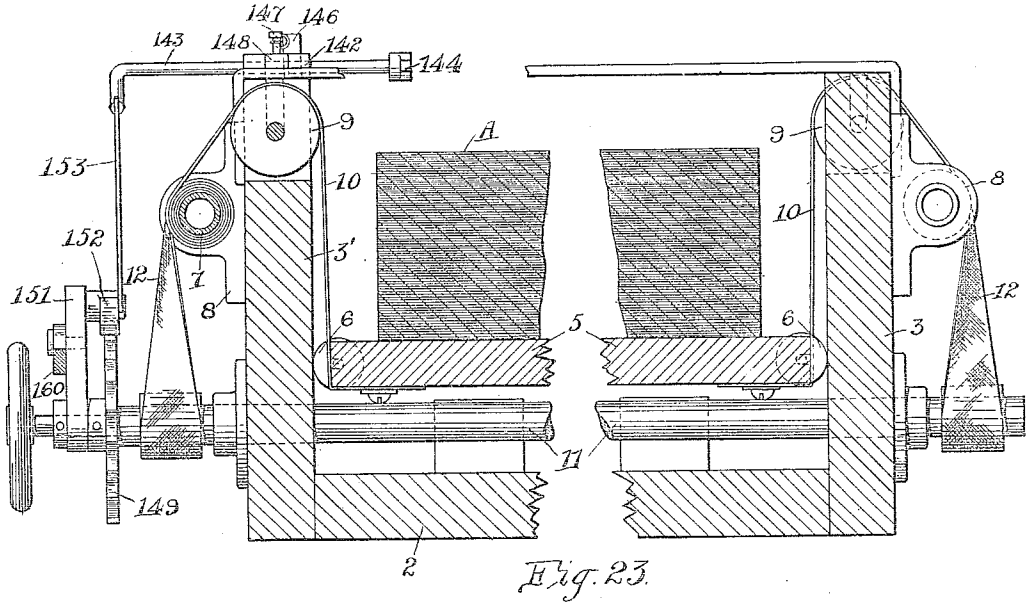

Fig. 23.

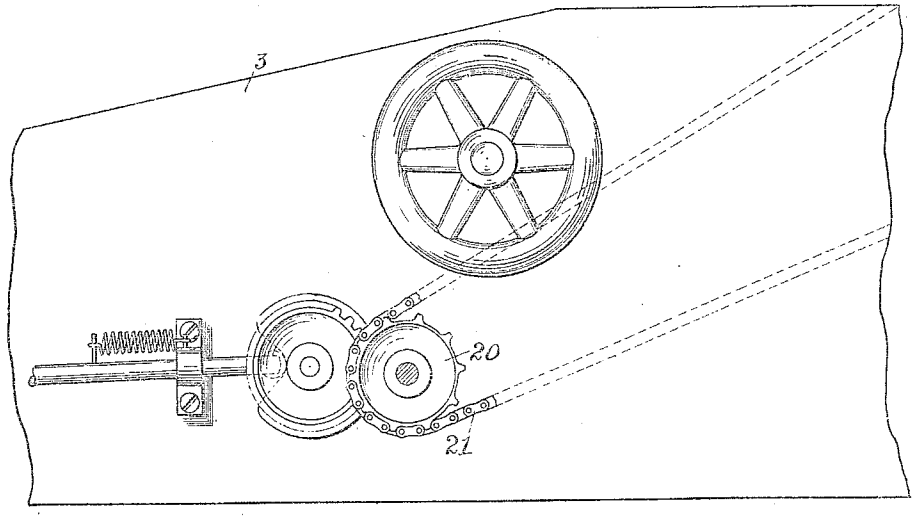

Fig. 24.

Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

JOSEPH A. KACHA, OF CHICAGO, ILLINOIS.

FEED MECHANISM FOR PRINTING-PRESSES.

953,840. Specification of Letters Patent. Patented Apr. 5, 1910.

Application filed March 27, 1909. Serial No. 486,243.

To all whom it may concern:

Be it known that I, JOSEPH A. KACHA, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Feed Mechanism for Printing-Presses, of which the following is a specification.

My invention relates to feed mechanism, and more specifically to such as is used in connection with printing presses.

The object of my invention is to provide a mechanism of the character mentioned especially adapted for employment, in connection with a printing press, for successively and regularly feeding individual sheets of paper thereto.

A further object of my invention is to provide a feed mechanism of the nature stated which will be entirely automatic in its operation, it being adapted to be connected with and to be driven by the driving means of the printing press or other mechanism in connection with which it is used.

A still further object is to provide a feed mechanism as mentioned which will be reliable and durable and which will be of the highest possible efficiency.

Other objects will appear hereinafter.

With these objects in view my invention consists generally in a mechanism supporting frame or base in which is arranged an automatically elevatable platform upon which is adapted to be carried the sheets of paper to be fed by my mechanism individually to the printing press.

My invention further consists in means mounted upon said supporting frame, whereby upon the operation of which, the sheets carried by said platform will be one at a time removed from the latter and carried upon inclined friction belts to the gripping means of the printing press adjacent to which the mechanism is arranged.

My invention further consists in certain details of construction and arrangement of parts all as will be hereinafter fully described and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a top plan view of my machine in its preferred form, Fig. 2 is an enlarged fragmentary top plan view of the portion of my mechanism to the right of the line *x x* of Fig. 1, Fig. 3 is an end elevation thereof looking from the line *y y* shown in Fig. 2, the side wall of the mechanism framing being removed, Fig. 4 is a vertical tranverse section taken substantially on the line *z z* of Fig. 2, Fig. 5 is a sectional view taken substantially on the line *w w* of Fig. 2, Fig. 6 is a detail of the sheet crimping mechanism shown in Fig. 5, illustrating its operation, Figs. 7, 8 and 9 are details of several of the parts of the construction shown in Fig. 2, Fig. 10 is an enlarged detail front elevation of the sheet gripping mechanism shown in Fig. 4, Fig. 11 is a side elevation thereof, portions being broken away so as to better illustrate its construction, Fig. 12 is a rear elevation thereof, Fig. 13 is a top plan view thereof, Fig. 14 is a detail, partly sectional, side elevation of said gripping mechanism, illustrating the position of several of the parts thereof, when the jaws thereof are in gripping position, Fig. 15 is an enlarged fragmentary top plan of a portion of the mechanism to the left of the line *v v* of Fig. 1, Fig. 16 is a side elevation of the construction comprised between the lines *u u* and *u′ u′* of Fig. 15, Figs. 17, 18, 19 and 20 are details of the mechanism shown in Fig. 16, Fig. 21 is an enlarged left side elevation of the central portion of the mechanism, comprising that portion thereof shown up to substantially the line *t t* of Fig. 1, Fig. 22 is an enlarged top plan view of the central portion of the device, the central portion thereof being broken away, illustrating essentially the platform elevating mechanism, Fig. 23 is a vertical transverse section taken substantially on the line *s s* of Fig. 22 and, Fig. 24 is a left side elevation thereof.

Referring now to the drawings 1 indicates the supporting frame of my device, the same comprising the bottom member 2 and the right and left-hand side members 3—3′ respectively. Secured to said bottom and side members is a transversely extending, substantially centrally positioned, vertically disposed, preferably metallic partition 4 adapted, when the device is in operation, to act in the capacity of a stop for the paper sheets A placed therein to be fed therethrough. Vertically adjustable in the rear-

ward portion of the frame 1 is a platform 5, the same being provided at either of its lateral edges with rollers 6 adapted to contact the inside vertical surfaces of the frame sides 3—3′, such rollers obviously preventing lateral movement of the platform. Having their respective end portions secured to the lateral edges of said platform and to the longitudinally and horizontally extending shafts 7 rotatably mounted in brackets 8 secured to the outer surfaces of said frame sides 3—3′, the same passing over pulleys 9 rotatably mounted in the upper edge of said frame sides, are flexible belts 10.

Suitably mounted in bearings provided in the lower portion of the frame sides 3—3′ is a transversely extending shaft 11. Having their opposite extremities respectively secured to the opposite end portions of said shaft 11 and to the central portions of said shafts 7 are belts 12. By such provision, upon the rotation of the shaft 11, the elevation of the platform 5 is evidently effected.

Mounted in bearings provided in the frame sides 3—3′, forward of the partition 4, is a transversely extending shaft 13 which serves in the capacity of the main or drive shaft for the mechanism. Provided at one extremity of the shaft 13 is a clutch sprocket 14, the same being so mounted thereon as to be adapted to drive said shaft in one direction only. Said sprocket is adapted to be connected to any suitable driving means, the same being, however, preferably connected to a suitable adjacent revolving part of the printing press or other mechanism in connection with which the device is employed. Mounted upon the upper edges of said frame sides 3—3′, by means of parallelly extending straps 15 suitably secured thereto, is a transversely extending elongated base member or platform 16. Rotatably mounted in bearing brackets 17 secured to said base 16, is a shaft 18, to one extremity of which is fixed a sprocket wheel 19. Connecting said sprocket wheel and a sprocket wheel 20 fixed to the drive shaft 13 is a sprocket chain 21 of any suitable construction. Rotatably mounted in bearing brackets 23 secured to said base 16, the same being positioned forwardly of, and arranged parallel with the shaft 18, is a shaft 24. Said shafts 18 and 24 are operatively connected by means of a gear 25 fixed to the former of said shafts and a pinion 26, in mesh with said gear, fixed to the latter thereof. Positioned rearwardly of, and extending parallel with the shaft 18, is a shaft 27 rotatably mounted in bearing brackets 28 secured to the base 16, said shafts being operatively connected by means of a gear 29 fixed to the last named thereof in mesh with the gear 25.

Reciprocally mounted in a two-armed bracket 30 secured to the base 16 is an elongated rod 31 preferably square in cross section. The rearward end portion of said rod engages the periphery of a cam wheel 32 fixed to the shaft 27, the former being provided with a roller 33 so as to reduce friction between said parts. A coil spring 33′ interposed between an arm of the bracket 30 and a pin 34 secured in and projecting from the rod 31 serves an obvious purpose. By such construction, upon the rotation of the shaft 27, the rod 31 will evidently be given a reciprocatory motion. Slidably mounted upon the forward end portion of said rod, the same being adjustably secured thereto by means of set screws 35, is a block 36. Slidably mounted in said block, the same extending therethrough perpendicularly to the rod 31, is an elongated angularly formed plate 37, the same being provided with a slot 38 to accommodate said rod. Said screws 39 threaded into said block, are adapted to lock said plate 37 in position therein. Depending from one of the extremities of said member 37, the same being secured thereto preferably by means of screws 40, is an elongated rectangular member 41, the lower extremity of which is provided with an inwardly extending jaw-forming projection 42 the upper surface of which is cylindrically formed. Vertically slidable upon said member 41 is a jaw-forming block 44 the lower end surface of which is concave in shape to conform with the convex construction of the jaw-forming projection 42 with which it is adapted to cooperate, the sheets A to be fed through the mechanism being, when the latter is in operation, gripped between said jaws and carried forwardly thereby a certain distance, such operation being hereinafter more fully described.

In order to effect the elevation of the movable upper jaw member 44, a flexible tape 45 having its respective extremities secured to the latter and to a stationary support, preferably the bracket 30, the same passing over a pulley 46 mounted upon a stud shaft secured in and projecting from the rearwardly extending portion 47 of the plate 37, is provided. By such provision, upon the forward forcing or movement of the rod 31, effected by the cam 32, to a position as shown in dotted lines in Fig. 4, the jaw member 44 will obviously be raised against the tension of a coil spring 48, to a position as shown in full lines in Figs. 10, 11 and 12. In order to hold said jaw in raised or opened position, the following provisions are made. A shaft 49 rockingly mounted in bearings 50 secured to the member 41, is provided. Fixed to said shaft is a two-armed member 51, the substantially horizontally disposed arm 52 of which projects through an opening 53 provided in the upper portion of the

member 41, the same being of such a length as, when in its lowermost position, in which event it rests upon the lower portion of the opening 53, to extend just to the inner surface of the member 41, as clearly shown in Fig. 14. The arm 54 of said member is adapted to engage the lower angularly formed end portion of a leaf spring 55 the upper end portion of which is suitably secured to the member 37. Fixed to one end of said shaft is a collar 56, projecting from and formed integrally with which is an arm 57 which projects beyond the inner surface of the member 41.

Secured to and upwardly projecting from the upper surface of the jaw member 44 is a plate 58 provided at its upper end portion with a slot 59. The arms 52 and 57 are so arranged that, upon the elevation of the jaw member 44, the upper extremity of the plate 58 will abut the under edge of the arm 57 forcing the same upwardly and thereby causing the rocking of the shaft 49. Upon such rocking of the latter, the extremity of the arm 52 will be forced into the slot 59, into engagement with the upper edge of said slot, as clearly shown in Fig. 11, the arm 54 in such event being brought to engage the angularly formed lower extremity of the spring 55, which obviously locks the same in such position, hence evidently causing the locking of the plate 58 and hence the jaw member 44 in elevated position. In order to release said jaw at the innermost extremity of the movement of the gripping mechanism, a trip arm 44′ secured to and projecting from the base member 16 is provided. The shaft 49 is formed at one of its extremities with an arm 60 arranged at right angles thereto, the same being positioned in alinement with the trip arm 44′. Said arm 44′ is of such a length, that the outer extremity thereof is adapted, when the gripping mechanism is close to the inner extremity of its movement, to engage the arm 60 of the shaft 49, thereby causing the return rocking of the latter, and hence the release of the jaw 44 which drops because of its own gravity and because of the tension of the spring 48 to engagement with the stationary jaw 42. The tape 45, however, is of such a length that the same does not, until the gripping mechanism has moved forwardly a certain distance, effect the elevation of the upper jaw, such provision being clearly illustrated in Figs. 3 and 4, hence when the machine is in operation, the sheet gripped by the jaws will be carried forwardly that distance, the purpose of which will be more fully described hereinafter.

In order that the gripping jaws may grip the sheet A, it is necessary, because of the construction of the former to crimp said sheet opposite, or in alinement with the movement of said jaws. With the object in view of providing means for the performance of such function, I provide a bevel pinion 62 at the extremity of the shaft 24. Mounted in bearing brackets 63 secured to the base 16, is a shaft 64 disposed preferably at right angles to the shaft 24. Meshing with the pinion 62, the same being fixed to the shaft 64, is a bevel gear 65. Adjustably secured, as by screws 66 resting in the slot 67 provided therein, to the forward extremity of said shaft is a crank plate or web 68 at one extremity of which is formed a crank pin 69. Having one of its extremities mounted upon said pin is an elongated rod 70 to the forward curved end portion of which is secured a tubular member 71 in the lower end portion of which is suitably secured a friction, preferably rubber shoe, 72 adapted to engage the upper surface of the sheet A. Adjustably mounted upon a stud shaft 73 secured in and projecting from the bracket 30 is a slotted plate 74, the securing screw 75 therefor passing through the elongated slot 76 provided in said plate for the reception of the same. Rotatably mounted upon the lower extremity of said plate is a roller 77 upon which is adapted to travel the rod 70. In order to effect a forced contact of said shoe with the upper surface of the sheet to be gripped, that is the sheet A, an angular arm 78 is provided, the same being pivotally mounted upon the shaft 73. One extremity of said arm 78 is provided with a roller 79 adapted to contact said rod 70, the slotted opposite extremity thereof being engaged by a compression coil spring 80 mounted upon a rod 81 extending through the slot in said extremity of said arm, the outer extremity thereof being pivoted to a bracket 81′ secured to the base 16. By such provision the roller 79 is held in forced engagement with the rod 70, thereby effecting the purpose above stated. In operation, upon the rotation of the gear 65, the shoe 72 will travel in a path partially shown by the broken line in Fig. 6, or in a path such as to adapt the same to cause the crimping of the sheet A, as shown in said figure. A projecting horizontally disposed, transversely extending rod 82 secured to the front edge of the base 16 is adapted to limit the upward extent of the crimp formed in the sheet A. However, in order to effect such crimping of the sheet a stop is necessary, it being evident that without such provision, upon the contacting thereof by the shoe 72, the entire sheet would be moved laterally. With the object in view of providing means of fulfilling such necessity, I provide a lever 83 rockingly mounted at substantially its central portion upon a bracket 84. Having one of its extremities rockingly mounted upon the extremity of the stud shaft 85, se-

cured as by screws 86 to and forwardly projecting from the front edge of the base 16, is an arm 87, at the free extremity of which is provided a tubular member 88 in which is adjustably secured a friction shoe 89 adapted to contact the upper surface of the sheet A. A coil spring 90 carried by the shaft 85, one extremity thereof being fixed to the latter, the opposite extremity thereof being in engagement with the arm 87 serves as a means of normally holding said shoe 89 in forced engagement with the sheet. Connecting the substantially central portion of said arm 87 and the forward extremity of the lever 83 is a link 91. In order to effect the elevation of the shoe 89, it being evident that the latter need only be in engagement with the sheet A during the crimping thereof, I provide a cam 93 fixed to the shaft 27, with the under side of the periphery of which is adapted to contact the upper surface of the rearward end portion of the lever 83, as clearly shown in Fig. 3. The mechanism is so adjusted, that, when in operation, the shoe 89 will contact the sheet A just prior to the contacting thereof by the shoe 72, it remaining in engagement therewith until just subsequent to the elevation of the latter, for obvious reasons.

In the operation of the construction thus far described one corner only of the sheet would be engaged, hence the latter would be drawn through the machine at an angle, or in a position obliquely disposed. In order that the other end portion of the sheet will also be forced or fed along at the same rate of movement as that of the end portion carried by the gripping device, before described, or in other words, in order that the sheet shall be fed through the machine with the front edge thereof disposed in parallelism with the front edge of the machine, I provide a transversely disposed shaft 95 rotatably mounted in bearing brackets 96 secured to the front edge of the base 16. Fixed to one extremity of said shaft is a sprocket wheel 97. Engaging said sprocket wheel and a sprocket wheel 98 fixed to one extremity of the shaft 27 is a sprocket chain 99. Fixed to the opposite extremity of the shaft 95 is a disk 100 at the periphery of which is provided a seat-forming portion 101 in which is carried the upper end portion of a projecting friction shoe 102 locked therein by means of a plate 103 secured to said portion 101 by means of screws 104, such construction being clearly shown in Fig. 17. In the operation of the machine said shoe is adapted, when in its lowermost position, to engage the upper surface of the sheet A and thereby force the same forward, the machine being so adjusted that such actuation of said shoe shall occur simultaneously with the moving forward of the gripping device, the same being adapted to force its end portion of the sheet the same distance forward as the opposite end portion thereof is carried forwardly by said gripping device. Such operation is clearly shown in Fig. 16.

Fixed to the left-hand extremity of the drive shaft 13 is a gear wheel 105. In mesh with said gear, the same being fixed upon a counter-shaft 106 mounted in bearings provided in a bracket 107 secured to the frame side member 3′ and the latter is a pinion 108. Rotatably mounted in bearings provided in the frame sides 3—3′, the same being positioned slightly above the drive shaft 13, is a transversely extending shaft 109. A pinion 110 fixed to said shaft 109, in mesh with the gear 111 fixed to the shaft 106, establishes an operative connection between the latter shaft and hence the drive shaft 13 and the first named of said shafts. Fixed to said shaft 109, the same being preferably equally spaced apart thereon, is a plurality of friction pulleys or rollers 112. Rockingly mounted in bearing brackets 113 secured to the base 16 is a rock shaft 114. Fixed, as by set screws 115, to said shaft are forwardly extending angularly formed arms 116, in the extremity of the depending forward end portions of each of which is secured a shaft 117 disposed therein in parallelism with the shaft 109. Carried by said shafts are rotatably mounted friction rollers 118 adapted each to contact or coact with one of the pulleys 112. A coil spring 119 having its respective extremities secured to the upper extremity of an inverted U-shaped bracket 120 and to a rearwardly extending arm 121 fixed to the shaft 114, is adapted normally to hold said rollers 118 in forced contact with their respective pulleys 112. In operation said pulleys 112 and coöperating rollers 118 are adapted to contact and to forwardly feed the sheet A subsequent to and at the termination of the feeding forward thereof by the gripping jaws 42—44 and shoe 102 before described; the latter, it being understood, being provided to carry the sheet to such a position as to make it possible for said rollers to engage the same. In order to effect the elevation of said rollers 118, such being obviously necessary so as to permit of the sheet A being positioned between the same and the rollers 112, and so as to permit of the engaging thereof thereby, I provide an eccentric 122 fixed to the shaft 27 against the under side of the periphery of which the rearward end portion of the arm 121 is adapted to rest, as clearly shown in Fig. 16. By such provision the above named purpose is evidently satisfied. However, in operation the rollers 118 will not be lowered to engagement with the sheet until the gripping device has moved far enough forward, after the elevation of the jaw 44 thereof, to be out

of the path of the sheet, hence so as not to prevent its forward movement.

Because of the great coherency of adjacent sheets of paper, especially when arranged in a pile or block, as is the condition in this machine, upon the withdrawal of the upper sheet or sheet A from the paper pile, the second sheet or that adjacent to the sheet A would invariably be moved with the latter, if not the entire distance with the same, far enough to defeat and prevent the perfect working of the machine. With the purpose in view of providing means for the prevention of such occurrence, I provide an angularly formed elongated longitudinally extending lever 123, the forward extremity of which is rockingly mounted upon the shaft 124 the extremities of which are mounted in brackets 125 secured to the base 16. Adjustably secured, as by a set screw 126, to the rearward cylindrically formed end portion of said lever 123 is a shoe 127, the under surface of which is provided with a block or covering 128 of frictional material. Said shoe is adapted normally to rest in forced engagement with the upper surface of the rearward edge of the sheet pile because of the weight of the lever 123. In order to provide for the momentary elevation of said shoe, so as to permit of the withdrawal of the sheet A from beneath the same, I provide an eccentric 129 fixed to the shaft 27, the same being so arranged upon said shaft as to be adapted to contact, and hence elevate the lever 123, and hence the shoe 127 just an instant before the feeding forward of the sheet A by the gripping jaws 42—44 and the shoe 102; and to hold the same in elevated position just long enough to permit of the withdrawal from beneath the same of said sheet, whereupon the same will engage the sheet immediately beneath the sheet A, with an obvious result. Such operation of said lever is clearly shown in Fig. 16.

In the construction thus far described no provision is made for the gradual elevation of the sheet carrying platform 5, so as to compensate for the withdrawal of sheets therefrom, such provision being obviously essential principally because of the shoe 72 in order that the same may properly crimp the sheets prior to the gripping thereof, in order to effect such gripping it being necessary that the elevation of the upper sheet or that to be fed through the machine, be constant. To effect the automatic compensating elevation of said platform I provide an angularly formed longitudinally extending lever 130 the front extremity of which is rockingly mounted upon a stud shaft 131 carried by a bracket 132 secured to the upper surface of the base 16. The rearward end portion 133 of said lever is adapted normally, because of a coil spring 134 interposed between the same and the base 16, to rest upon the upper surface of the sheet pile, as shown in Fig. 21. Rotatably mounted in a two-armed bearing bracket 135 secured to the base 16 close to the rearward edge thereof, is a shaft 136 at one of the extremities of which is fixed a gear wheel 137 meshing with the gear wheel 138 fixed to the shaft 27. Fixed to the shaft 136 is an eccentric 140 adapted to contact and hence to elevate the lever 130, the same being provided to effect the elevation of said lever from contact with the sheet pile upon the withdrawal of the sheet A therefrom. Secured to and laterally projecting from said lever is an elongated arm 141. Rockingly mounted in bearings 142 secured to the upper edge of the frame side 3′, is a substantially U-shaped lever 143 the arm 144 of which is adjustably secured to the extremity of the transversely extending portion thereof, the end portion of said arm being held in constant engagement with the arm 141 by means of a coil spring 145 having its respective extremities secured to a bracket 146 provided upon the upper edge of the frame side 3′ and a pin 147 projecting from a collar 148 fixed to the lever 143.

Fixed to the left-hand extremity of the before mentioned shaft 11 is a ratchet wheel 149, a pawl 150 suitably mounted upon the frame side 3′ adapted to constantly engage the teeth of the ratchet wheel 149 being adapted to prevent reverse movement of said ratchet wheel and hence of the shaft 11, the purpose of such provision being obvious. Having one of its extremities rockingly mounted upon the extremity of the shaft 11, the same being positioned thereon adjacent to the ratchet wheel 149, is a rocker arm 151. Rockingly mounted upon the free end portion of said rocker arm is a pawl 152 adapted to engage the teeth of the ratchet wheel 149. A link 153 operatively connects the free extremity of said pawl and the before mentioned lever 143, as clearly shown in Fig. 21. In mesh with the pinion 108, the same being fixed to a shaft 106 mounted in bearings provided in the bracket 107 and the frame side 3′, is a gear wheel 156. Fixed to the outer extremity of said shaft 155 is a disk 157 projecting from which, close to the periphery thereof, is a wrist pin 158. Having its respective extremities connected to said pin 158 and a pin 159 projecting from the rocker arm 151, is a connecting rod 160. By such provision, upon the rotation of the shaft 155, an oscillatory motion will evidently be imparted to said rocker arm. With such construction, upon the upper surface of the sheet pile falling below a certain predetermined elevation, at which elevation the crimping shoe 72 will operate with greatest efficiency, the

lever 143 will obviously be rocked downwardly, thereby, through the medium of the link 153, forcing the pawl 152 into engagement with the ratchet wheel 149, thus causing the rotation of the latter and hence the elevation of the sheet carrying platform 5 to proper height. By such provision, it is evident that the automatic elevation of the platform is effected, the upper surface of the sheet pile being by such construction retained at a constant elevation.

Having its extremities rotatably mounted in bearing plates 162 secured to and projecting from the forward extremities of the frame sides 3—3′, is a shaft or roller 163, a similar shaft 163′ having bearings in said frame sides being provided rearwardly of said shaft 163 close to the lower edge of said frame sides. Traveling upon said shafts and upon several of the before mentioned rollers 112 are friction belts 164 upon which the sheets are adapted to be carried upon leaving the rollers 118. In order to prevent the displacement of said sheets from said belt, and also in order to effect the downward deflection of the same as they are fed from between the rollers 112 and 118, a plurality of longitudinally extending bars 165 are provided, the same being adjustably secured at substantially their central portions to a transversely extending shaft or supporting rod 166 having its extremities fixed in brackets 167 secured to the upper edge of the frame sides 3—3′. A bifurcated bar 168 having its forward extremity also adjustably secured to the shaft 166 serves in the same capacity as the bars 165.

While I have shown what I deem to be the preferable form of my device, I do not wish to be limited thereto, as there might be many changes made in the details of construction and arrangement of parts without departing from the spirit of my invention. And although I have designed my device with special reference to printing presses, I may use the same in connection with any other mechanism to which it is applicable.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. In mechanism of the class described, the combination with a supporting frame, of a vertically adjustable platform mounted therein and adapted to support a pile of paper sheets; mechanism for buckling the forward edge of the top sheet of said pile; a longitudinally reciprocating clamp member provided with a yieldable clamping jaw adapted to clamp said buckled portion of said sheet at the rearward extremity of its reciprocation; a flexible opening connection between said clamping jaw and a fixed support, said flexible connection having enough slack to permit partial forward movement of the clamp with the clamping jaw closed; trigger mechanism for locking the clamp jaw in open position; and tripping mechanism for tripping said trigger mechanism at the rearward extremity of the reciprocation of said clamp, substantially as described.

2. In mechanism of the class described, the combination with a support for a pile of paper sheets, of a pressure foot adapted to intermittently contact with the top of the pile, a rotatable shaft; a wrist pin operated by said shaft; a rod pivoted to said wrist pin; a guide roller for said rod; a friction shoe carried by said rod and arranged to rub the top sheet of said pile toward said pressure foot, thereby causing a buckling in the sheet; yieldable means for holding said rod on said roller; and feed mechanism for gripping the buckle in said sheet to feed the same, substantially as described.

3. In mechanism of the class described, the combination with a support for a pile of paper sheets, of a pressure foot adapted to intermittently contact with the top of the pile; a rotatable shaft; a wrist pin operated by said shaft; a rod pivoted to said wrist pin; a guide roller on said rod; a friction shoe carried by said rod and arranged to rub the top sheet of said pile toward said pressure foot, thereby causing a buckling in the sheet; a yieldable roller for holding said rod on said guide roller; and feed mechanism for gripping the buckle in said sheet to feed the same, substantially as described.

4. In a mechanism of the class described, the combination with a supporting frame, of a transversely extending drive shaft mounted in bearings provided therein, a vertically adjustable platform supported in said frame, a transversely extending second shaft driven by said drive shaft, a cam provided on said second mentioned shaft, a rod perpendicularly extending to said shaft adapted to be reciprocated by said cam, a gripping device adjustably secured to the forward extremity of said rod adapted to grip one end portion of the forward edge of and to carry forwardly the upper sheet of a pile of sheets adapted to be carried by said platform, a transversely extending third shaft in operative connection with the second mentioned shaft, rotatable means carried by said shaft adapted to engage the opposite end portion of the upper sheet of said pile of sheets, the same being adapted to feed said end portion forwardly the same distance as the opposite end portion is carried forwardly by said gripping means, a transversely extending fourth shaft in geared connection with said drive shaft positioned adjacent to the forward edge of said platform, rollers carried by said shaft, a fifth shaft mounted at the forward extremity of said supporting frame parallelly extending

with said fourth shaft, a plurality of belts traveling over said rollers and said fifth named shaft, and automatically vertically elevatable friction rollers adapted to coöperate with several of the rollers provided on said fourth named shaft, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH A. KACHA.

Witnesses:

JOSHUA R. H. POTTS,

HELEN F. LILLIS.