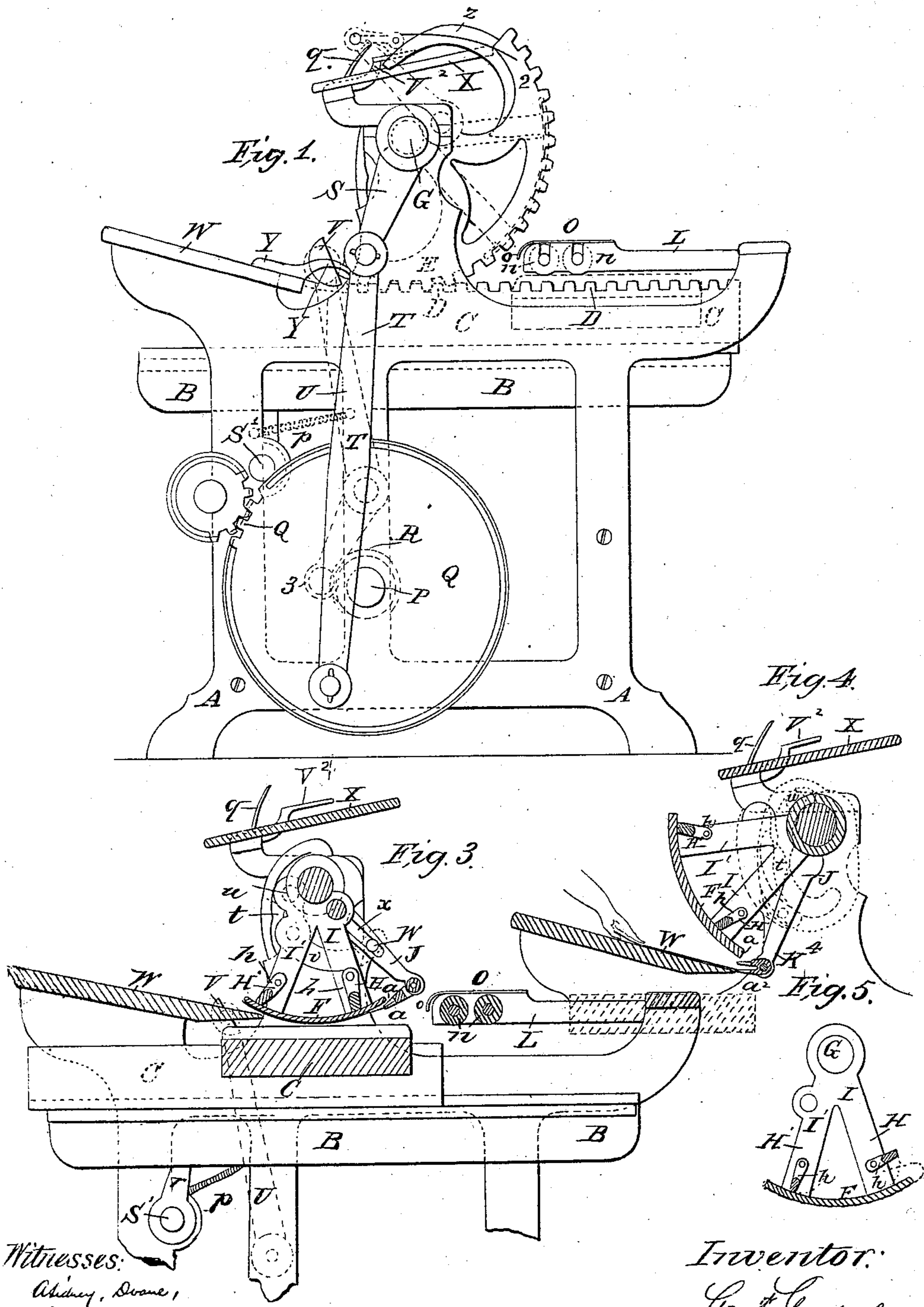


G. P. GORDON.
PRINTING PRESS.

No. 41,841.

Patented Mar. 8, 1864.



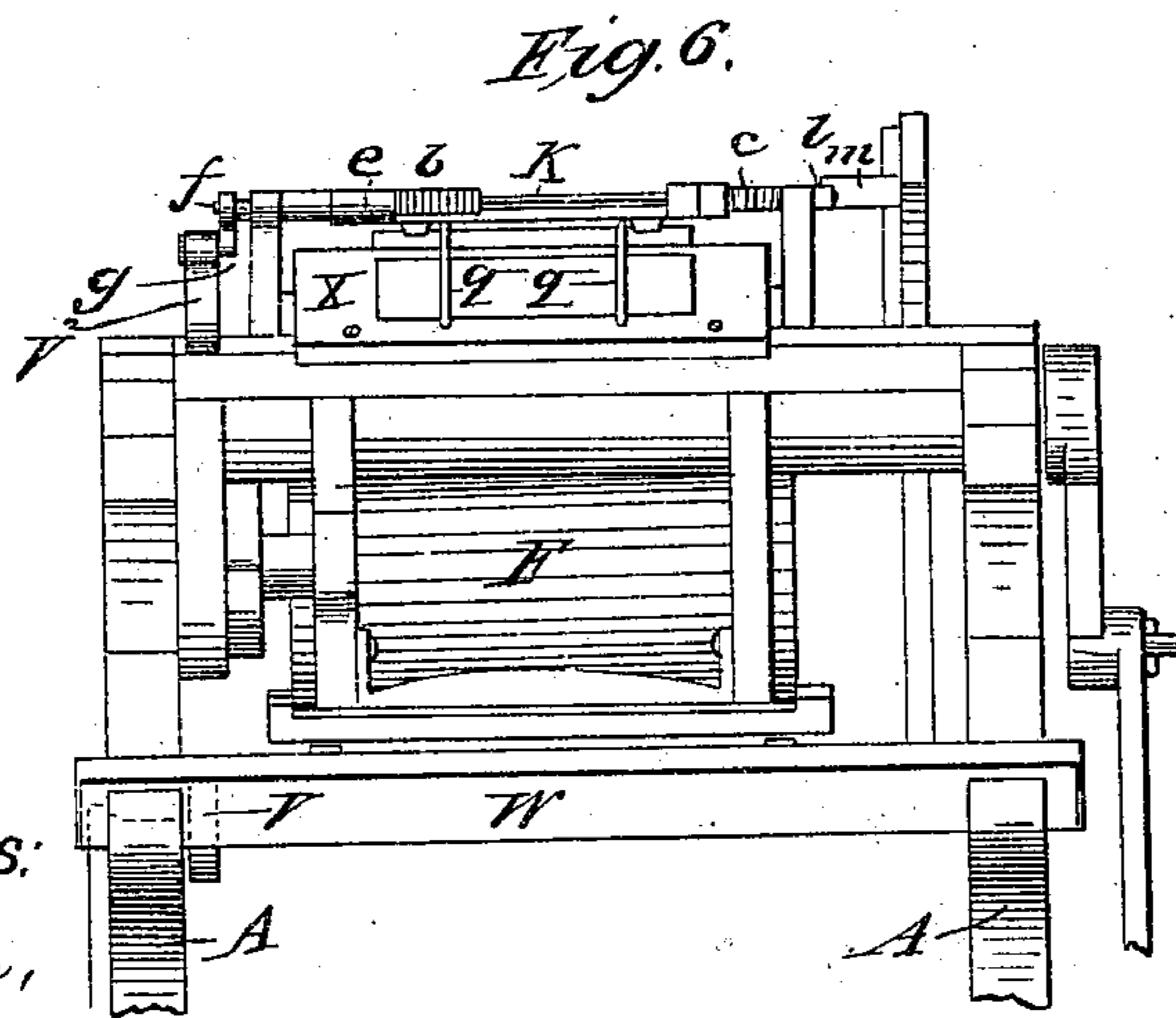
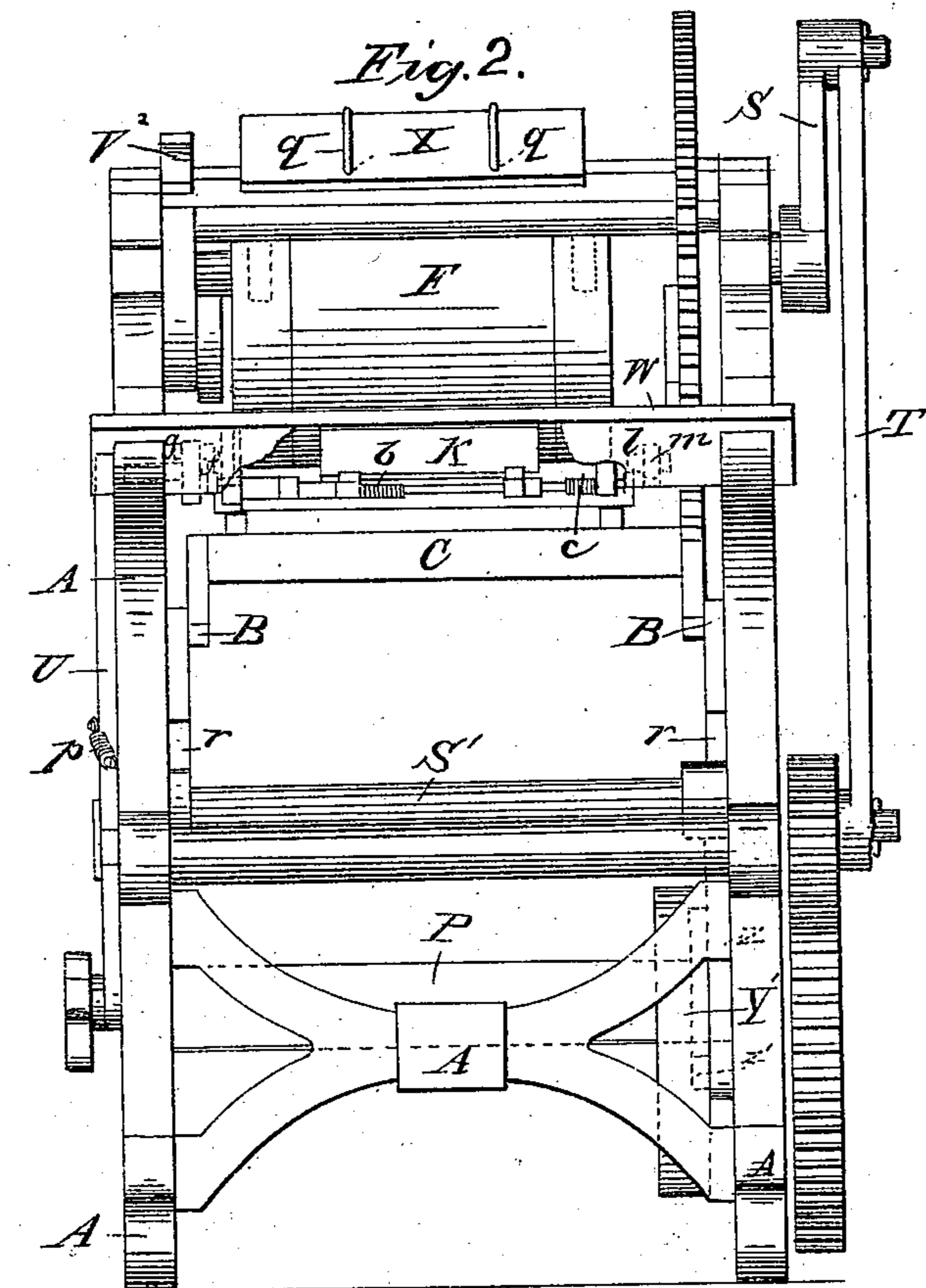
Witnesses:
Abney, Doane,
A. Turner.

Inventor:
G. P. Gordon

G. P. GORDON.
PRINTING PRESS.

No. 41,841.

Patented Mar. 8, 1864.



Witnesses:

Attest, Doane,
A. Turner.

Inventor.
G. P. Gordon

UNITED STATES PATENT OFFICE.

GEORGE P. GORDON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. 41,841, dated March 8, 1864.

To all whom it may concern :

Be it known that I, GEORGE P. GORDON, of Brooklyn, Kings county, in the State of New York, have invented, made, and applied to use certain new and useful Improvements in the Construction and Operation of Printing-Presses; and I do declare that the following is a full, clear, and correct description of my invention, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation of my improved printing-press; Fig. 2, a front elevation of the same; Fig. 3, a longitudinal sectional view of the same; Fig. 4, a detached view of the cylinder or segment of a cylinder employed, showing the nippers in the act of taking the sheet from the feed-table; Fig. 5, a detached view of the cylinder or segment of a cylinder employed, showing the tympan-holders and their mode of attachment; Fig. 6, a detached section of a front view of my improved printing-press; Fig. 7, a detached view of the cam in the blank *Y'* and of the eccentric *r*.

In the drawings like parts of the invention are designated by the same letters of reference.

The nature of my invention consists, first, in taking the unprinted sheet from the feed-table, presenting it properly to the type for the reception of the impression, relieving it from such impression, and carrying it to and depositing it upon the pile-table by the use of reciprocating automatic nippers, whether constructed and operated in the precise manner hereinafter shown or in an equivalent way to produce a like result; second, in combining said reciprocating automatic nippers with a cylinder or segment of a cylinder which shall have a part rotary with a return movement; third, in giving a reciprocating motion to the bed by and through the reciprocating motion of the cylinder or segment of a cylinder; fourth, in the use or employment of the nipper-trip and the nipper-guide, in combination with the reciprocating bed and the reciprocating nippers, and in combining all of these with the cylinder or segment of a cylinder which has a part rotary with a return movement; fifth, in combining the tympan-sheet holders with the cylinder or segment of a cylinder for the purpose hereinafter shown; sixth, in the use or employment of rotating reciprocating nippers to pile the sheet, (heretofore patented by me,) in combination with a cylinder or seg-

ment of a cylinder for the purpose or purposes hereinafter shown; seventh, in piling the printed sheet directly before or in front of and under the eye of the operator, so that he may at once detect any imperfection in the impression, (as heretofore patented by me,) when combined with a cylinder or segment of a cylinder, substantially as hereinafter described.

To enable those skilled in the art to make and use my invention, I will speak of its construction and operation.

A A show the frame for supporting the operating parts of my improved printing-press.

B shows ways upon the inside of said frame A A, upon which ways B the bed C travels to and from the impression.

C shows the bed of my improved printing-press, in which bed C the form or types are placed. This bed C is provided with the rack D, gearing into the segment-gear E upon the cylinder or segment of a cylinder F.

F shows a cylinder or segment of a cylinder hung upon the shaft G, and provided with the segment-gear E, gearing into the rack D upon the bed C. This cylinder or segment of a cylinder F is also provided with the tympan-holders H and H', attached to the supports I and I'. These tympan-holders H and H' are constructed of a plane straight piece or bar, having projecting from each end at a right angle from such piece or bar an arm, *h*. These arms *h* are pivoted, one on either side to the supports I and I', so that the tympan-holders H and H' may swing and move freely upon such pivots for the purpose of turning up any distance required to allow the insertion of the tympan-sheets between the gripping-edge of the tympan-holder and the planed edge of the cylinder or segment of a cylinder. The inside of the cylinder or segment of a cylinder is planed true to harmonize with the gripping-edge of the tympan-holders, which, when shut down against the segment of a cylinder, insures the retention of the tympan-sheet.

J shows the nipper-arms attached to the supports I, by which nipper-arms J and the rod K are supported and carried.

a and *a*² show the sheet-taking nippers, the upper nippers being designated by *a* and the lower nippers by *a*². Both the upper, *a*, and the lower nippers, *a*², are hinged or swiveled upon the rod K.

b is a spring wound upon the rod K, one end

of which spring *b* is fastened firmly in the upper nippers, *a*, while its other end is fastened in the lower nippers, *a*², which spring serves to close and hold together the nippers *a* and *a*² in taking the sheet from the stationary feed-table *W*.

c is a spiral spring placed upon the rod *K* for the purpose of turning the nippers *a* and *a*² down to their proper position.

d is a short eccentric-shaft held in a journal-box, *e*, firmly attached upon the rod *K*. This short eccentric-shaft is provided at one end with an eccentric, and at its other end is attached the crank-arm *f* with the roller *g*. The eccentric plays freely between the nippers *a* and *a*², properly fitted for such purpose. The crank arm *f*, with its roller *g*, is operated by the trip *V*, and also by the stationary trip *V*², as described, and aids in opening and closing the nippers *a* and *a*². At the opposite end of the rod *K* is attached the crank-arm *l*, with its roller *m*, which crank-arm *l*, through its roller *m*, impinges upon the nipper-guide *z* and nipper rod holder *Y*, to aid in opening and closing the nippers *a* and *a*².

L shows a frame attached to the back of the press for supporting the inking-rollers *n*, which inking-rollers *n* are inserted in the slots in the frame *L*.

O is a shield, placed directly over the inking-rollers *n*, the front portion, *o*, of which shield *O* is properly curved and serves to prevent the printed sheet in its transit from the point of impression to the pile-board *X* from coming in contact with the inking-rollers *n*.

P shows the driving-shaft of the press, having keyed upon one end the cog-wheel *Q*, and upon its opposite end the surface cam *R*.

S shows a crank-arm keyed upon the shaft *G*. This crank-arm *S* and cog-wheel *Q* form cranks to operate the connection *T*, attached to them, as shown.

U is a bent lever operated by the surface cam *R*, to the upper end of which bent lever *U* the trip *V*, for opening and closing the nippers *a* and *a*² upon the rod *K*, when taking a sheet from the feed table *W*, is attached.

p is a spiral spring attached to the bent lever *U* and the frame *A*, which spring *p* serves to keep the lower end of the bent lever *U* always against the surface cam *R*.

W is the feed-table, upon which the sheet to be printed is laid preparatory to its being taken therefrom by the nippers *a* and *a*² upon the rod *K*.

X shows the pile table, placed above the feed-table *W*, upon which pile-table are the finger sheet-stops *q q*.

Upon the shaft *P* is placed the blank *Y*, provided with a cam.

Z is a crank-arm provided with a stud and roller, *z'*, playing in the cam upon the blank *Y*.

r are eccentrics hung upon the shaft *S'*, which eccentrics *r* bear directly upon the under-side of the ways *B*, upon which ways *B*, the bed *C* travels to and from the impression.

t is a cam placed upon the inner side of the

frame *A A*, in which cam *t* the stud and roller *u* upon the crank-arm *v* plays freely. The opposite end of this crank-arm *v* has attached to it the stud and roller *w*, playing in the slot *x* in the nipper-arm *J*.

Suitable means for supplying ink to the inking-rollers *n* may be attached to the press.

Y is the nipper-rod holder attached to the feed-table *W*.

z is a guide attached to the segment-gear *E*, for the purpose of elevating or depressing the nippers *a* and *a*², through the crank-arm *l* and roller *m*, attached to the rod *K* and bearing upon the guide *z*.

Operation: We will suppose the tympan-sheet to have been placed upon the cylinder or segment of a cylinder, the form or types to have been placed upon the bed, and the sheet to have been laid upon the feed table preparatory to its being taken therefrom by the nippers. Motion being communicated to the press, the surface cam *R* upon the shaft *P*, through the roller *3* and the bent lever *U*, commences to throw back the trip *V*, upon which trip *V* rests the crank-arm *f*, with its roller *g*. As the trip *V* continues its backward movement or is withdrawn from supporting the crank arm *f* and its roller *g*, the spiral spring *b* closes the jaws of the nippers *a* and *a*², which nippers *a* and *a*² grip the sheet. The cylinder or segment of a cylinder *F*, operated by the cranks *S* and *Q*, through the connection *T*, now begins its backward movement, drawing with it the bed *C* by means of the segment-gear *E*, gearing into the rack *D* upon the bed *C*. As the cylinder or segment of a cylinder *F* progresses in its backward movement, the nippers *a* and *a*², attached as shown, draw the sheet from the feed-table *W*, and, moving with the cylinder or segment of a cylinder *F*, present it (the sheet) to the type for the purpose of receiving an impression, the rod *K*, upon which the nippers *a* and *a*² turn, being held in its stationary position upon the cylinder or segment of a cylinder *F* by means of the stud and roller *u* playing in the cam *t*. The sheet having been presented to the form or types, the bed *C* and cylinder or segment of a cylinder *F* continue their backward movement until an impression has been given. Upon the continued backward movement of the cylinder or segment of a cylinder and the bed, the nippers *a* and *a*², operated through the crank-arm and roller *u*, playing in the cam *t*, commence rising upward and toward the pile-table *X*, the nippers *a* and *a*² being kept in the required position by the guide *z* upon the segment-gear *E*, and upon the cylinder or segment of a cylinder, and the bed reaching the terminus of their transit, the crank-arm *f* and its roller *g* having impinged upon the stationary trip *V*², the nippers *a* and *a*² are opened, and by the aid of the finger sheet-stops *q q* the sheet is piled upon the pile-table *X*. During this backward movement of the bed the form, passing under the roller-frame *L*, in which are placed the rollers *n*, has re-

ceived its ink. When the cylinder or segment of a cylinder has reached the terminus of its transit, it then commences its return or forward movement, carrying with it the bed, and as this forward movement continues the eccentrics r , operated by the cam in the blank Y' upon the shaft P , are thrown out of the straight line occupied by them during the backward movement of the cylinder or segment of a cylinder and the bed, and the ways B vibrate with the bed C away from the cylinder or segment of a cylinder to avoid giving an impression upon the forward or return movement of the cylinder or segment of a cylinder and the bed. The cylinder or segment of a cylinder and the bed continue their forward movement until the crank-arm f and its roller g impinge upon the trip V to open the nippers a and a^2 to take the succeeding sheet from the feed-table W , and the eccentrics r , operated by the cam in the blank Y' upon the shaft P , are thrown back (after the cylinder or segment of a cylinder and the bed have passed the point of impression) to the position occupied by them during the backward movement of the cylinder or segment of a cylinder and the bed, and the operation first described is repeated.

I would call particular attention to the feature hereinafter claimed—namely, the reciprocating automatic nippers or nippers having a forward and backward movement as well as an independent movement in themselves. The offices or duties of these nippers are, first, they open; second, they close upon and take the unprinted sheet from the feed-table; third, they present the sheet properly to the type; fourth, they carry such sheet in harmony with the movement of the cylinder or segment of a cylinder during the giving of an impression; fifth, they relieve the sheet from the form or types; sixth, they move, after an impression has been given, independently, and with a quicker motion than that of the cylinder or segment of a cylinder, to the pile-table with the printed sheet; seventh, they there open and pile the printed sheet; eighth, they have a return movement or reciprocate to the feed-table to take the succeeding sheet.

I have devised many ways to accomplish all of this by the use of "reciprocating automatic nippers," and I deem it unimportant whether such nippers shall be constructed precisely as shown, so long as a reciprocating motion shall be imparted to them for the purposes I have fully described.

I herein show but one of the many reciprocating movements I have tried, and I have chosen this method of the many, as it enables me to pile the sheet, printed side up, in the best possible position for the operator to see at once any imperfection that may exist.

One purpose above described—that of piling the sheet with reciprocating nippers—I have heretofore patented, but this was the

sole duty of such nippers. This patent bears date November 16, 1858, and I claim "the use of rotating reciprocating nippers for such purpose, when used either separately or in combination with a rotating reciprocating fly." These nippers were used for taking the sheet from a stationary platen after the impression had been given. In my present application I use these piling-nippers in combination with the cylinder or segment of a cylinder and moving with and by the motion imparted to the cylinder or segment of a cylinder. The novelty, utility, simplicity, and effectiveness of this combination will readily be seen.

In my patent of July 5, 1859, I claim, "by use of automatic grippers, piling the sheets directly before or in front of and under the eye of the operator, so that he may at once detect any imperfection in the impression." This again was used upon a press employing a bed and platen. I now claim thus piling the sheet in combination with a cylinder or segment of a cylinder, which is a feature of great importance in a cylinder-press—is also new and exceedingly useful.

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

1. Taking the unprinted sheet from the feed table, presenting it properly to the type for the reception of the impression, relieving it from such impression, and carrying it to and depositing it upon the pile-table, by the use of one and the same set of reciprocating automatic nippers, whether constructed and operated in the precise manner shown or in some equivalent way to produce a like result.

2. The combination of said reciprocating automatic nippers with a cylinder or segment of a cylinder which shall have a part rotary with a return movement.

3. The nipper-trip V and the nipper-guide z , in combination with the reciprocating bed and the reciprocating nippers, and these in combination with the cylinder or segment of a cylinder which shall have a part rotary with a return movement.

4. The combination of the tympan-sheet holders with the cylinder or segment of a cylinder, for the purpose shown.

5. Rotating reciprocating nippers to pile the sheet, (heretofore patented by me,) when combined with a cylinder or segment of a cylinder operating substantially as shown.

6. The piling the printed sheets by the use of one and the same set of reciprocating automatic nippers directly before or in front of and under the eye of the operator, so that he may at once detect any imperfection in the impression, (as heretofore patented by me,) when combined with a cylinder or segment of a cylinder, substantially as described.

GEO. P. GORDON.

In presence of—

A. TURNER,
A. SIDNEY DOANE.