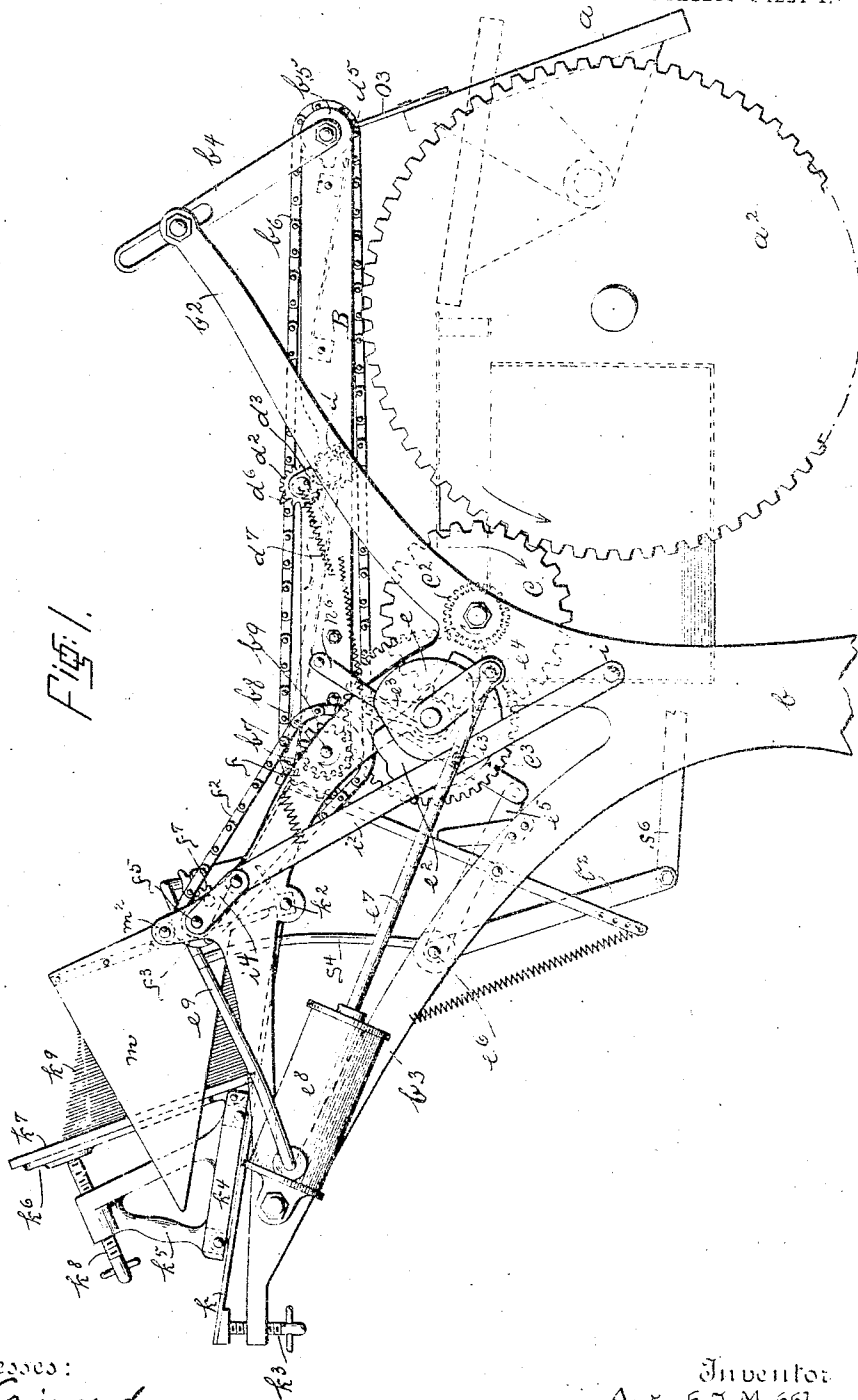


941,162.

A. J. MOTT LAU.
PRINTING PRESS.
APPLICATION FILED OCT. 8, 1907.

Patented Nov. 23, 1909.

5 SHEETS—SHEET 1.



Witnesses:
B. F. Kernard
A. R. Appleman

Inventor
August J. Mottlau.
By Attorney
J. C. Lander

A. J. MOTT LAU.
PRINTING PRESS.

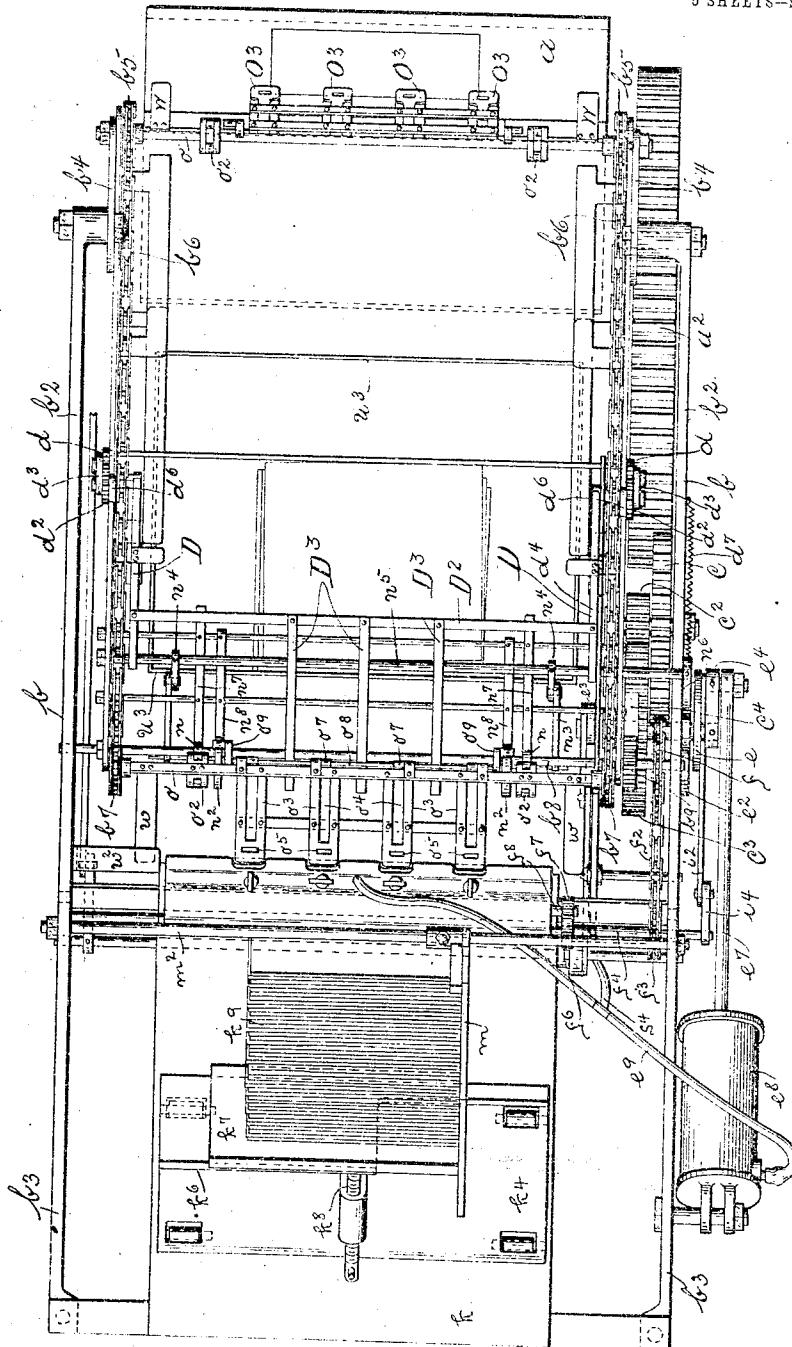
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Fig. 2.



Witnesses:

B. F. Bernard
H. J. Erdman

Inventor
August J. Mottlau.
By Attorney
J. H. L. L. L.

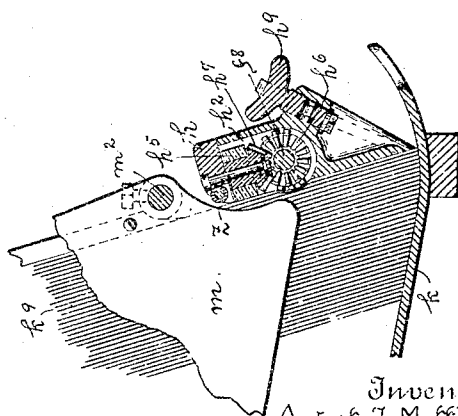
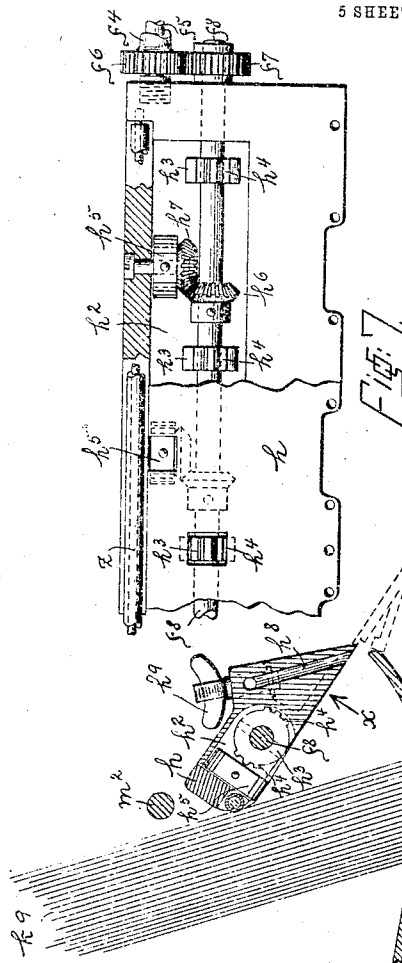
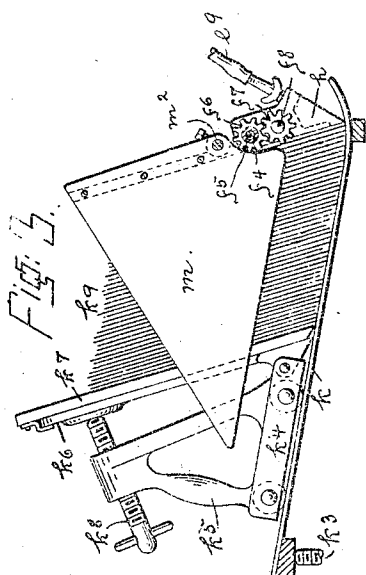
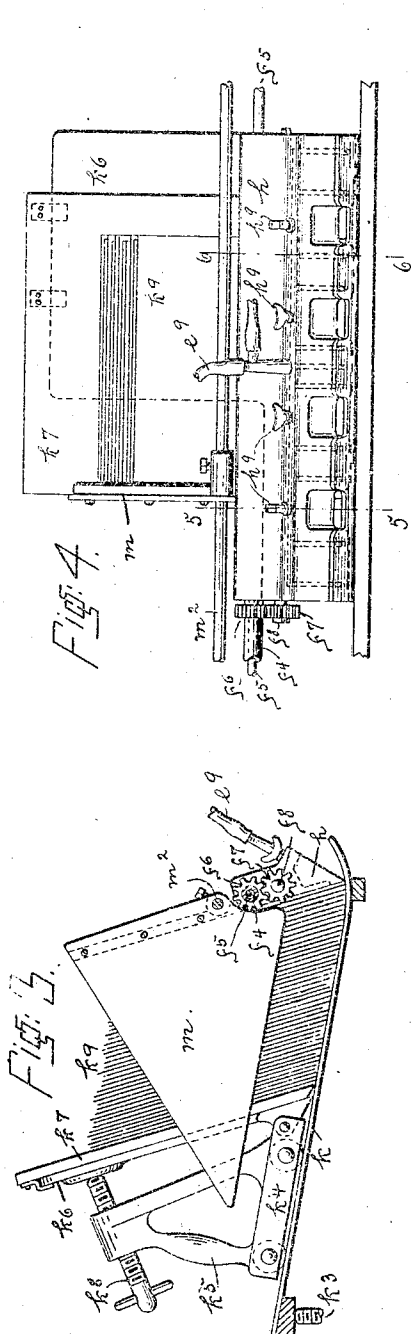
A. J. MOTT LAU.
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5 SHEETS—SHEET 3

941,162.



Witnesses:
J. F. Reinard
A. R. Appleman

Inventor
August J. Mottlau.
By Attorney
J. Christensen

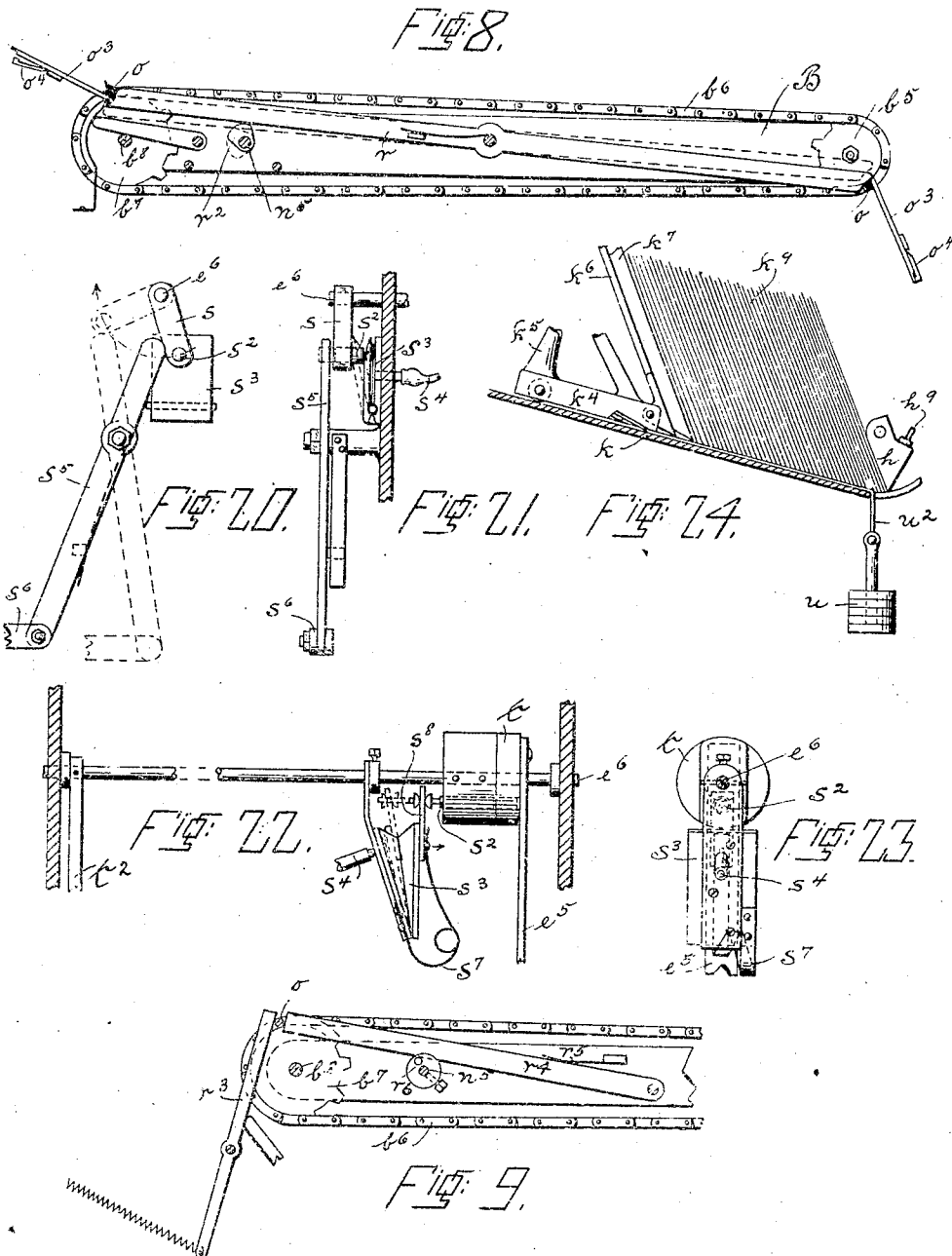
A. J. MOTT LAU.
PRINTING PRESS.

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Patented Nov. 23, 1909.

5 SHEETS—SHEET 4.

941,162.



Witnesses:
M. M. Whipple
Gustav Christen

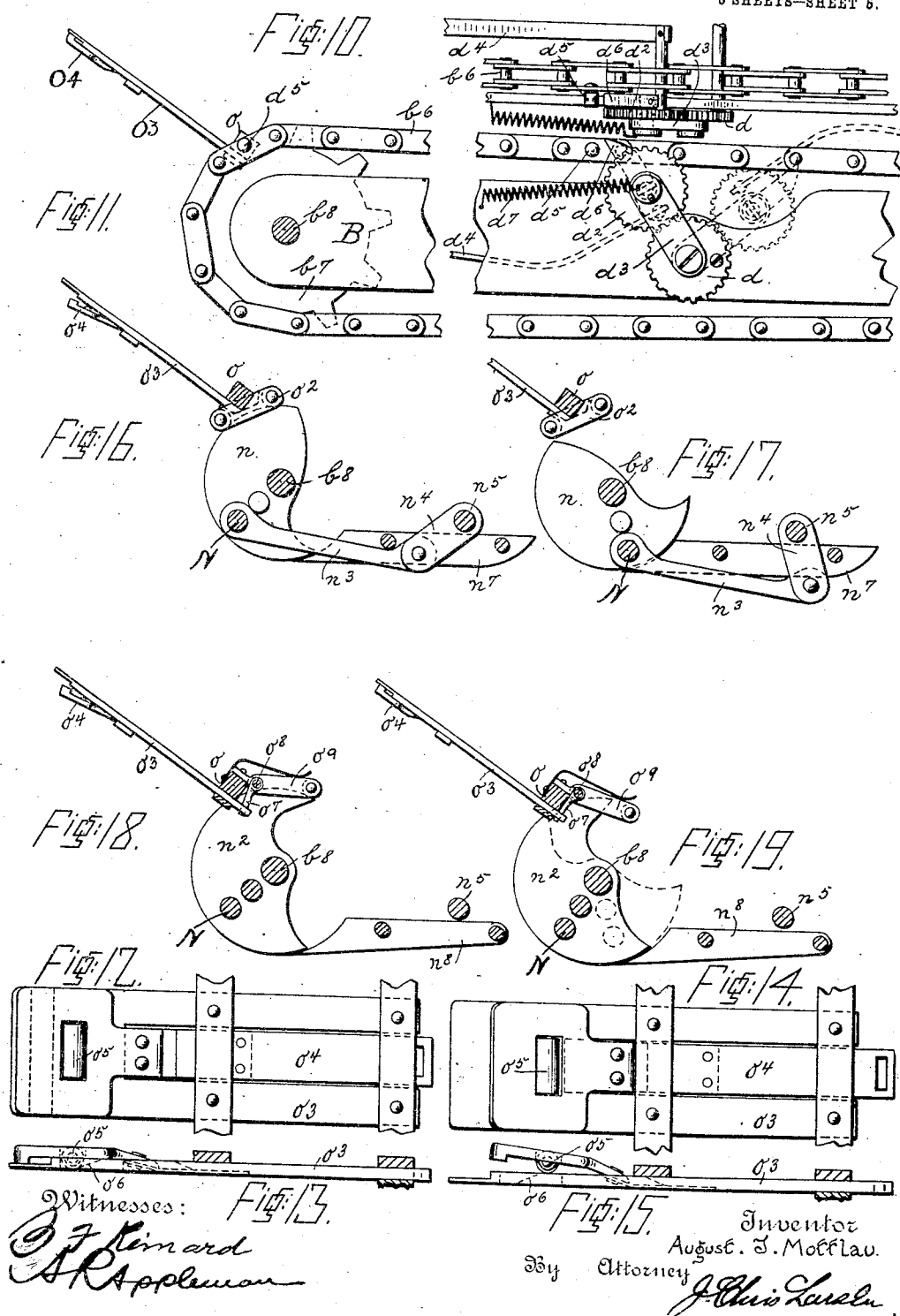
Inventor
August J. Mottlau.
By Attorney
J. W. Fiske,

941,162.

A. J. MOTT LAU.
PRINTING PRESS.
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5 SHEETS—SHEET 5.



UNITED STATES PATENT OFFICE.

AUGUST J. MOTT LAU, OF NEW YORK, N. Y., ASSIGNOR TO THE PRESS FEEDER COMPANY, A CORPORATION OF NEW YORK.

PRINTING-PRESS.

941,162.

Specification of Letters Patent.

Patented Nov. 23, 1909.

Application filed October 8, 1907. Serial No. 396,412.

To all whom it may concern:

Be it known that I, AUGUST J. MOTT LAU, a subject of the King of Denmark, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to printing presses, particularly of the class employed for small or job work, and the object thereof is to provide automatic means for registering and feeding the blanks to be printed whereby the manual labor is dispensed with; a further object being to provide means for so manipulating all sizes and weights of paper within certain limits; a further object being to register one blank while another is being conveyed to a printing position; a further object being to provide means for reversing a blank before printing from the position at the feeding point; a further object being to provide pneumatic devices for separating one blank from the mass thereof at approximately the instant when the conveyer is in a gripping position; a further object being to provide the means for actuating the "throw off" of the press when no blank has been gripped by the conveyer and a still further object being to provide such a device which is readily attachable to any make of presses of this type without in any way altering the press and with no or very slight alteration of the attachment.

The invention is fully described in the following specification, of which the accompanying drawings form a part, in which the separate parts thereof are designated by the same reference characters in each of the views, and in which:—

Figure 1 is an elevation of the invention in position for use, several elements of a printing press being shown to describe the connection thereto. Fig. 2 is a plan view thereof. Fig. 3 is an enlarged fragmentary view showing how the blanks are arranged. Fig. 4 is a face view of Fig. 3; Fig. 5 is a sectional view on the line 5—5 of Fig. 4 and showing the registering device; Fig. 6 is a view similar to Fig. 5 on the line 6—6 of Fig. 4; Fig. 7 is an enlarged fragmentary view of the back of the registering device, partly broken

away, in the direction of the arrow α ; Fig. 8 55 is an enlarged view of the conveyer; showing one form of locking devices therefor; Fig. 9 is a modification thereof; Fig. 10 is a fragmentary view, in plan, of a tripping device which I employ; Fig. 11 is an elevation 60 thereof; Fig. 12 is an enlarged plan view of a gripper carried by the conveyer, in one position; Fig. 13 is a side view thereof; Fig. 14 is a view similar to Fig. 12, in a different position; Fig. 15 is a side view thereof; Fig. 16 65 is a detached view, in one position, of a cam for the conveyer and grippers; Fig. 17 is a view similar to Fig. 16, but in a different position. Fig. 18 is a detached view of another cam which operates the grippers; Fig. 19 is 70 a view similar to Fig. 18, but in a different position. Fig. 20 is a detached view of the side of a "throw-off" operating device; Fig. 21 is an edge view thereof; Fig. 22 is a view of a modification over that shown in Figs. 20 75 and 21; Fig. 23 is an end view thereof; Fig. 24 is a detached view of means for forcing the blanks forwardly into a position to be manipulated.

In Figs. 1 and 2 of the drawings are shown 80 the platen a , of the oscillating type, and the main drive wheel a^2 of a press of the small job type and to which this attachment is added but without any change in the construction of the press, either directly there- 85 upon or adjacent thereto in such manner as to insure the relation of the parts hereinafter described.

The invention comprises a support consisting of two side members b having branches 90 b^1 and b^2 , the former of which carry adjustable links b^3 upon the lower ends of which are rotatable sprocket wheels b^4 over which pass chains b^5 to and around sprocket wheels b^6 upon a shaft b^7 passing entirely across the 95 attachment and said shaft also carries a gear wheel b^8 , and a plate B extends, on each side of the machine and within the corresponding chain b^5 , from the shaft b^7 to the shafts of the sprockets b^6 . 100

Mounted upon one of the members b is an idle gear wheel c which is enmeshed with the drive wheel a^2 of the press and to which is secured a pinion c^2 enmeshed with a gear c^3 which is mutilated, as shown at c^4 105 for about half its thickness and engaging the gear b^8 which is slightly thinner than the mutilated portion referred to so that con-

stant rotation of the gear, c^3 results in intermittent rotation of the gear b^5 and shaft b^5 to which it is secured and thereby of the sprocket wheels b^5 and b^7 , and the relation of the gears a^2 and c is similar to the relation of the pinion c^2 and gear c^3 whereby the latter rotates at the same speed as the drive wheel a^2 of the press.

Secured against rotation upon each of the plates B is a gear wheel d with which is enmeshed a similar gear d^2 rotatable upon an arm d^2 rotatable upon the axis of the gear d and the gear d^2 is therefore rotatable over the gear d and secured thereto is a frame d^4 comprising side arms D, a transverse bar D^2 at the outer ends thereof and longitudinal arms D^3 secured thereto which is swung through an arc of a circle when the gear d^2 is rotated and carried through a smaller arc, this movement of the gear d^2 being accomplished by means of a stud d^5 upon each of the chains b^6 striking a trigger d^6 upon the gear d^2 in the movement of said chains and after the stud has been released from the trigger a spring d^7 carries the gear d^2 and frame d^4 into the normal position away from the press.

Secured to the gear wheel c^3 are two cams e and e^2 and two crank arms e^3 and e^4 , the former of which oscillates an arm e^5 and thereby a shaft e^6 and the latter of which is connected to the piston rod e^7 of a pump e^8 provided with a flexible tube e^9 , the reasons for each of which will be later explained.

Secured to the shaft b^5 is a sprocket wheel f which carries a chain f^2 also passing over a sprocket wheel f^3 secured to a sleeve f^4 freely movable upon a shaft f^5 and carrying a gear wheel f^6 enmeshed with a gear wheel f^7 upon a shaft f^8 passing through the registering device and which comprises a block h provided with a recess h^2 , said shaft f^8 having a plurality of rollers h^3 provided with oppositely arranged teeth h^4 , preferably of rubber, rotatable in vertical planes and said shaft also rotates supplemental rollers h^5 with teeth similar to the teeth h^4 by means of bevel gears h^6 and h^7 and the block h is also provided with a longitudinal bore communicating with a plurality of vertical bores h^8 controlled by valves h^9 and in communication with the pump e^8 through the tube e^9 .

Pivoted to the frame b , at i , is a lever i^2 , which has a stud i^3 thereon bearing against the cam e , and is connected with a link i^4 secured to the shaft f^5 and when the lever i^2 is oscillated by the cam e the shaft f^5 and registering device h are also moved through an arc of a circle, said shaft having bearings in the branches b^3 of the frame b .

Extending between the branches b^3 is a platform k which is pivoted at k^2 and adapted to be inclined by means of a screw k^3 and slidably mounted upon the platform

k is a carriage k^4 provided with a handle k^5 and carrying an upright plate k^6 having a sliding extension k^7 and adapted to be set at a desired inclination by means of a set screw k^8 , said platform k serving as the support for the mass of blanks k^9 which are to be printed and the plates k^6 and k^7 serving as a rest therefor when inclined to a greater or less degree according as the said blanks are of heavy or light material as, the greater the inclination, the further forward will the lower edges of the blanks project and thus reduce the distance which they must be moved to a gripping position, it being obvious that heavy boards are not as easily bent as thinner sheets of paper, and, upon one end of the carriage k^4 is a paper guide m for the side edges of the blanks.

Loosely mounted upon the shaft b^5 are two sets of cams n and n^2 connected to each other by means of a transverse rod N and movable in unison by means of an arm n^3 connected therewith and with a crank n^4 upon a shaft n^5 in the plates B and to which is secured an arm n^6 actuated by the cam c^2 and rotatably mounted between the chains b^6 are two shafts o rotatably mounted in the chains b^6 , at opposite points in the lengths thereof, and which carry trucks o^2 secured thereto and which are adapted to move over the peripheries of the cams n after having been guided thereonto by means of guides n^7 thus holding the shafts o in fixed relative positions. Also secured to the shafts o are a plurality of grippers each of which consists of a plate o^3 fixed to the said shafts and a plate o^4 slidable thereon and provided with rollers o^5 moving upon an inclination o^6 of the plate o^3 so that when the plate o^4 is moved backwardly or forwardly the outer ends of the plates o^3 and o^4 recede from or approach each other, as clearly shown in Figs. 12 to 15 inclusive, this movement being accomplished by means of a finger o^7 passed through an opening in each of the plates o^4 and connected with each other by means of a rod o^8 upon which are also mounted two arms o^9 provided with anti-friction rollers moving over the peripheries of the cams n^2 and guided thereunto by guides n^8 , the guides n^7 and n^8 being fixed to the support b and the latter being inclined so as to operate the arms o^9 , rod o^8 , fingers o^7 and thereby open the grippers previous to reaching the cams n^2 , said plates o^4 being actuated in the opposite or gripping position by means of springs bearing upon the arms o^9 or in any other desired manner.

In Fig. 8 is shown a bar r pivoted to the plates B one of which is provided, preferably, upon each of the said plates; and spring operated in one direction but adapted to be moved in the opposite direction by cams r^2 secured to the shaft n^5 , the outer ends of these bars being adapted to rest

against the shafts a to lock the same at certain periods and a lever r^2 is also employed to bear against the opposite side of the said shafts a , to force the same against the bars r and thereby always insure a certain position of the said shafts when not in motion, this position of the said shafts being necessary in order to bring the gripping ends of the grippers in an exact position at all times when ready for gripping, this position being closely adjacent the block h of the registering device when swung outwardly by means of the lever r^2 and cam c , and in Fig. 9 is shown a bar r^4 , similar to the bar r , but pivoted at its end instead of centrally thereof, actuated by a spring r^5 in one direction and by a cam r^6 in the opposite direction, the function of which is similar to the bar r .

In Figs. 20 and 21 is shown one form of means for operating the throw-off of the press, said means consisting of an arm s secured to the shaft e^6 oscillated by the arm e^5 and crank e^3 and provided with a spring actuated plunger s^2 normally held closely adjacent a small bellows s^3 connected with the suction tube e^9 by means of a branch tube s^4 , said bellows being normally held closed by the suction from the pump e^8 but spring operated in the opposite direction and, when so operated, the plunger s^2 is forced through the arm s and engages, in its swinging movement, one end of a lever s^5 which is in connection with the press throw-off by means of a link or rod s^6 , said throw-off not being shown as it is of well known construction, but said throw-off is operated thereby and no printing results, this occurring when no blank is engaged by the suction passages h^8 and the air being free to pass to the bellows permits the same to open and operate the plunger.

In Figs. 22 and 23 is shown a modification over that just described in that a loose collar t is mounted upon the shaft e^6 and provided with a recess adapted to receive the plunger s^2 operated by the bellows, said collar t being secured to the arm e^5 and, in the oscillation thereof, if no blank has been engaged by the registering device, air passing to the bellows permits the opening thereof, being forced in this direction by an external spring s^7 ; said bellows thereby forcing the plunger which is carried by an arm s^8 secured to the bellows s^3 into the collar t and rotating the shaft e^6 which moves an arm t^2 to which the connecting rod s^6 is connected, through an arc of a circle and the throw-off is operated.

In the practice of the invention, a mass of blanks is placed upon the platform k , substantially upright, according to the thickness of the said blanks as previously described, and the weight of the carriage k^4 forces said blanks against the block h of the registering device because of the inclination

of the said platform, this being assisted, if desired, by means of weights u connected with the carriage by means of straps u^2 as shown in Fig. 24, and in the intermittent rotation of the rollers h^3 and h^5 and the intermittent engagement of the blank by the teeth on the said rollers, said blank is forced toward the guide m by the rollers h^3 and released and toward the platform k by the rollers h^3 and released until the limit of movement is reached, this occurring with each blank as the one before it is removed and all the blanks are thus registered previous to being conveyed to the printing position and if the blank should be moved too far in either direction when engaged by the corresponding rollers or teeth thereof, said blank will buckle but will resume its flat position upon being released by the teeth of one set of said rollers, previous to the engagement by the teeth of the other set of rollers, as only the teeth of one set of rollers can be operative at one time and a short period occurs between the releasing by one set of rollers and the engagement by the other set, thus giving an opportunity for the buckled blank to straighten automatically.

The suction from the pump e^8 at the ends of the passages h^8 holds the lower edge of the adjacent blank against the block h and when the same is swung outwardly, toward the grippers which have been carried into and locked in gripping position at this time, or slightly before this, the blank is moved into position for gripping, at which time the cam e^2 moves the arm u^6 and thus the cams u and u^2 into the alternate positions shown in Figs. 17 and 19 thus releasing the arms o^9 and permitting the plates o^1 to move down upon the plates o^3 and grip the blanks; also the trucks o^2 , escaping the cams u , are free to follow the normal direction of the chains b^6 in a horizontal plane during which movement the blank is carried away from the mass of blanks by the grippers and to a position over the frame d^4 , the locking bars r having at this time been released and the blank is carried toward the press until the stud d^5 engages the trigger d^6 which throws the frame d^4 over to its alternate position thereby turning the blank completely over and to a position above the platen a which, moving to its printing position, supports the said blank which is dropped between the said platen and the type, all blanks being carried into exactly the same position on the platen for printing. During this operation the other set of grippers, there being a set on each of the shafts e , as clearly shown in Figs. 1 and 2, have been moved into a gripping position and a new blank adjusted both horizontally and vertically into exact position and engaged by the air suction through the block h which is then moved outwardly

and the cams n and n^2 being operated the new blank is engaged, the two chains b^6 having been stopped, because of the mutilation of the gear c^3 , to permit the first blank to be printed, and, after which, movement of the chains again begins, the new blank being swung over and carried into printing position and the first blank being released and dropped into a delivery box u^2 when the arms o^3 are engaged and operated by the guides n^5 to move the sliding plate o^4 of the grippers backwardly and thus open the same, and said grippers remain open due to the guides n^3 and n^2 until a new blank has been fed thereto in the manner described.

To insure, further, the exact relation of the grippers with the block h for gripping, an arm w is secured to the shaft o and is adapted to strike a stop u^2 upon the frame b in its swinging movement when the shaft o is being carried around the cam n , thus always stopping the grippers at the same position, and when the cams n release the shaft o , said arm w is permitted to swing down because of the pivotal mounting of the shaft o , and be drawn from under the stop u^2 in the forward movement of the chains; and it will be seen that, when the operation of the chains is prevented by the mutilated gear c^3 , one set of grippers is in position and open for the reception of a blank and the other set of grippers is at the other end of the device and holding a blank upon the platen for printing, the exact positions of said sets of grippers being always assured and maintained and the chains being locked against accidental movement.

The links b^4 are made adjustable in order that the centers of the blanks and of the platen may be made to register in a horizontal plane and the registration thereof in a vertical plane is accomplished by the horizontal adjustment of the guide m , which is adapted to be secured in any desired position upon a transverse fixed shaft m^2 upon the carriage k^4 , and, as previously explained, if no blank should be engaged by the block h , no printing results.

It will be seen, from this description, that an attachment is provided adaptable to all makes of presses of the type described, to exactly register blanks previous to being engaged by the conveyers, or, in other words, to move the same, successively, into a definite lateral and a definite transverse position, with reference to the plane thereof, to separate one blank from the mass thereof for engagement by the grippers, to hold one blank in printing position while another is being separated and engaged, to prevent printing when no blank has been so engaged, to manipulate blanks of varying weights and sizes and to insure the exact relationship between each of said blanks and the platen whereby the position of the printed matter

is in exactly the same position upon each of the printed sheets, either for one or more color work, said attachment being readily attachable to or detached from the press without any alteration in said press and being operable at as great speed as is the press.

An anti-friction roller z is employed, preferably, upon the side of the block h contiguous to the blanks to assist the free removal thereof, said removal, after a blank has been engaged by the grippers, being in a substantially horizontal plane due to the release of the trucks o^2 from the cams n and the pivotal mounting of the gripper carrying shafts o , permitting the said grippers to assume the direction of strain upon the blanks in their removal from the mass thereof and from the registering block h , the valves k^3 permitting the limitation of the suction surface according to the size of the blanks being printed there being a valve k^3 for each of the air channels.

Having fully described the invention, what is claimed as new and desired to secure by Letters Patent, is:—

1. In a printing press, a support for a plurality of blanks, devices for moving each of said blanks successively in different directions, at an angle to each other, in the plane of said blank, devices for detaching said moved blank from the mass thereof and devices for delivering said detached blank to the printing means.

2. In a printing press, a support for a plurality of blanks, rotary devices for moving one of said blanks in one direction, rotary devices for moving said blank at an angle thereto; devices for detaching said moved blank from the mass thereof and devices for delivering said detached blank to the printing mechanism.

3. In a printing press, a support for a plurality of blanks, rollers provided with oppositely arranged teeth for moving one of said blanks in different directions, devices for detaching said moved blank from the mass thereof and devices for delivering said detached blank to the printing mechanism.

4. In a printing press, a support for a plurality of blanks, a plurality of sets of rollers for moving one of said blanks in different directions, said rollers being intermittent in their operation and said sets being operative at different times, devices for detaching said moved blank from the mass thereof and devices for delivering said detached blank to the printing mechanism.

5. In a printing press, a support for a plurality of blanks, a plurality of sets of rollers, provided with oppositely arranged teeth, for moving one of said blanks, the teeth on one set of said rollers being at an angle to the teeth on the other set thereof, devices for detaching said moved blank from the mass thereof and devices for de-

livering said detached blank to the printing means.

6. In a printing press, a support for a plurality of blanks, rotary devices for moving one of said blanks in one direction, rotary devices for moving said blank at an angle thereto, means for actuating said rotary devices intermittently, devices for detaching said moved blank from the mass thereof and devices for delivering said detached blank to the printing means.

7. In a printing press, a support for a plurality of blanks, devices on said support for altering the positions of said mass of blanks, devices for moving one of said blanks in different directions, at an angle to each other, in the plane of said blank, devices for detaching said moved blank from the mass thereof and devices for delivering said detached blank to the printing mechanism.

8. In a printing press, a support for a plurality of blanks, devices for moving each of said blanks successively in different directions, at an angle to each other, in the plane of said blank, pneumatic devices for detaching said moved blank from the mass thereof and devices for delivering said detached blank to the printing means.

9. In a printing press, a support for a plurality of blanks devices for moving each of said blanks successively in different directions, at an angle to each other, in the plane of said blank, a swinging block, means for attaching said moved blank to said block, means for moving said block to remove said blank from the mass thereof and means for delivering said blank to the printing means.

10. In a printing press, a support for blanks, devices for moving each of said blanks, successively, in different directions, at an angle to each other, in the plane of said blank, a block, means for attaching said moved blank to said block, conveyer means, and means for moving said block and thereby said moved blank to a position adjacent to said conveyer means.

11. In a printing press, a support for blanks, devices for moving one of said blanks in one direction, devices for moving said blank at an angle thereto; a block, means for attaching said moved blank to said block, conveyer means to the printing mechanism, grippers thereon, and means for moving said block and thereby said blank to a point adjacent said grippers, for gripping.

12. In a printing press, a support for blanks, devices for moving each of said blanks successively in different directions, at an angle to each other, in the plane of said blank, devices for detaching said moved blank from the mass thereof, devices for delivering said detached blank to the printing means and means, on said delivery means, for engaging said blank.

13. In a printing press, a support for

blanks, devices for moving one of said blanks in one direction, devices for moving said blank at an angle thereto; devices for detaching said moved blank from the mass thereof, conveyer means, devices thereon for engaging said detached blank during the conveying thereof to the printing mechanism and devices for releasing said blank after having passed said printing mechanism.

14. In a printing press, a support for blanks, devices for moving one of said blanks in one direction, devices for moving said blank at an angle thereto; devices for detaching said moved blank from the mass thereof, conveyer chains arranged over the printing mechanism, grippers on said chains for engaging said detached blank and means for preventing the operation of said conveyer chains while said blank is being printed.

15. In a printing press, a support for blanks, devices for moving one of said blanks in different directions, at an angle to each other, in the plane of said blank, a block, means for attaching said moved blank to said block, means for moving said block to detach said blank, said blank moving devices being carried by said block, and devices for delivering said detached blank to the printing means.

16. In a printing press, a support for blanks, devices for moving one of said blanks in different directions, at an angle to each other, in the plane of said blank, pneumatic means for attaching said moved blank to devices for detaching said blank from the mass thereof, means for adjusting said pneumatic means to the size of said blanks and devices for delivering said detached blank to the printing means.

17. In a printing press, a support for blanks, devices for moving one of said blanks in different directions, at an angle to each other, in the plane of said blank, a block provided with air passages, valves therefor, a pump for causing suction in said passages to attract said moved blank, devices for moving said block to detach said blank and means for delivering said detached blank to the printing means.

18. In a printing press, a support for blanks, devices for moving one of said blanks in one direction, devices for moving said blank at an angle thereto; devices for detaching said moved blank from said mass of blanks, an air pump in connection with said last named devices, means for delivering said detached blank to the printing mechanism and means connected with said pump for preventing the operation of said press when no blank is detached from the mass thereof.

19. In a printing press provided with a throw-off, a support for blanks, devices for registering one of said blanks, devices for detaching said moved or registered blank

from the mass thereof, an air pump in connection with said last named devices, a bellows in connection with said pump, devices operated by said bellows for actuating said throw-off when no blank has been detached from the mass thereof and means for delivering said detached blank to the printing mechanism.

20. In a printing press, a support for blanks, devices for registering one of said blanks, devices for detaching said registered blank from the mass thereof, means for delivering said detached blank to the printing mechanism, comprising two endless chains arranged between the said support and the printing mechanism and over the latter and two sets of grippers connected with said chains and at opposite points thereon whereby one set thereof is adjacent said support and the other set adjacent said printing mechanism when printing occurs.

21. In a printing press, a support for blanks, means for registering a blank thereat, means for detaching said blank from the mass thereof, conveyer chains, grippers thereon and means for actuating said grippers, when adjacent said support, to engage said detached blank.

22. In a printing press, a support for blanks, means for registering one of said blanks thereat, means for detaching said registered blank from the mass thereof, conveyer chains, grippers thereon, means for actuating said grippers adjacent said support to engage said blank and means for releasing said blank at a predetermined point.

23. In a printing press, a support for blanks, means for registering one of said blanks thereat, means for detaching said registered blank from the mass thereof, conveyer chains, a rod pivoted thereto, a cam, a truck on said rod moving over said cam, means for operating said cam to release said carriage and grippers connected with said rod.

24. In a printing press, a support for blanks, means for registering one of said blanks thereat, means for detaching said registered blank from the mass thereof, conveyer chains, a rod pivoted thereto, grippers on said rod, means for opening said grippers, a cam for said grippers, and means for operating said cam to close said grippers and engage said blank.

25. In a printing press, a support for blanks, means for registering one of said blanks thereat, means for detaching said registered blank, conveyer chains, a rod pivoted thereto, grippers on said rod, a cam for insuring the position of said rod and said grippers, a supplemental cam for actuating said grippers and means for operating said cams.

26. In a printing press, a support for blanks, means for registering one of said

blanks thereat, means for detaching said registered blank, conveyer chains, a rod pivoted thereto, grippers on said rod, each of said grippers comprising a plate, a supplemental plate slidable thereon, means for forcing said plates apart when the latter is moved in one direction, and a cam for moving said sliding plate.

27. In a printing press, a support for blanks, devices for registering one of said blanks thereat, devices for detaching said registered blank, conveyer chains, grippers thereon and at opposite points of said chains, a cam for actuating said grippers at a predetermined point, a cam for guiding said grippers and a supplemental cam for actuating said first named cams.

28. In a printing press, a support for blanks, means for registering said blanks successively, means for detaching the registered blanks, printing mechanism, conveyers for delivering said detached blanks to said printing mechanism and means for adjusting said conveyers, with relation to the printing mechanism, according to the size of said blanks.

29. In a printing press, a support for blanks, means for registering said blanks successively, means for detaching the registered blanks, printing mechanism, a conveyer for said detached blanks arranged between said support and said printing mechanism, and means for adjusting the end of said conveyer adjacent said printing mechanism with relation thereto for different sizes of blanks.

30. In a printing press, a support for blanks, means for registering said blanks successively, means for detaching said registered blanks, a conveyer comprising endless chains, sprockets at each end thereof, and means for adjusting the outer set of said sprockets with relation to the printing mechanism for different size blanks.

31. In a printing press, a support for blanks, means for registering said blanks successively, means for detaching said registered blanks, means for delivering said detached blanks to the printing mechanism and means for reversing said blank in its passage thereto.

32. In a printing press, a support for blanks, means for registering said blanks, successively, means for detaching said registered blanks, means for delivering said detached blanks to the printing mechanism, a frame beneath the path of said delivery and means for swinging said frame and thereby reversing said blank.

33. In a printing press, a support for blanks, means for registering said blanks successively, means for detaching said registered blanks, means for delivering said detached blanks to the printing mechanism, a frame beneath the path thereof and means

connected with said delivery means for swinging said frame and thereby reversing said blank.

34. In a printing press, a support for 5 blanks, means for registering said blanks successively, means for detaching said registered blanks, means for delivering said detached blanks to the printing mechanism, a 10 frame in the path thereof, a gear on said frame, a supplemental gear and a stud on said delivery means for moving said gear over said supplemental gear and thereby swinging said frame and reversing said blank.

35. In a printing press, a support for a 15 pile of blanks, guides at a plurality of edges of said pile of blanks, means for registering each of said blanks, successively, against said guides and means for delivering the 20 registered blanks to the printing mechanism.

36. In a printing press, a support for blanks, guides at a plurality of edges of said 25 blanks, means for registering said blanks successively, against said guides, means for detaching the registered blanks, successively, and means for delivering said detached blank to the printing mechanism.

37. In a printing press, a support for 30 blanks, guides at a plurality of edges of said blanks, means for registering said blanks successively, against said guides, means for delivering said registered blanks to the printing mechanism and means for adjusting the angle of said support according to the flexibility of said blanks.

38. In a printing press, a support for 35 blanks, guides at a plurality of edges of said blanks, means for registering said blanks

successively against said guides, means for detaching said registered blanks, means for 40 delivering said detached blanks to the printing mechanism and means for adjusting the angle of said support according to the flexibility of said blanks.

39. In a printing press, a support for 45 blanks, guides at a plurality of edges of said blanks, means for registering said blanks successively, against said guides, means for detaching said registered blanks, means for delivering the detached blanks to the printing 50 mechanism and means for adjusting the relationship of said support and said detaching means to accommodate the same to the degree of flexibility of said blanks.

40. In a printing press, a support for a 55 pile of blanks, guides at a plurality of edges of said pile of blanks, means for moving each of said blanks, successively, against said guides, alternately, and means for delivering said moved blanks to the printing mechanism. 60

41. In a printing press, a support for a pile of blanks, means for moving the outermost one of said blanks into a definite lateral and a definite transverse position, alternately, and means for delivering said blank 65 to the printing mechanism.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 7th 70 day of October 1907.

AUGUST J. MOTT LAU.

Witnesses:

B. F. KEINARD,

A. R. APPLEMAN.