

No. 778,338.

PATENTED DEC. 27, 1904.

W. H. SMILEY.  
PRINTING PRESS.

APPLICATION FILED JULY 14, 1903.

2 SHEETS—SHEET 1.

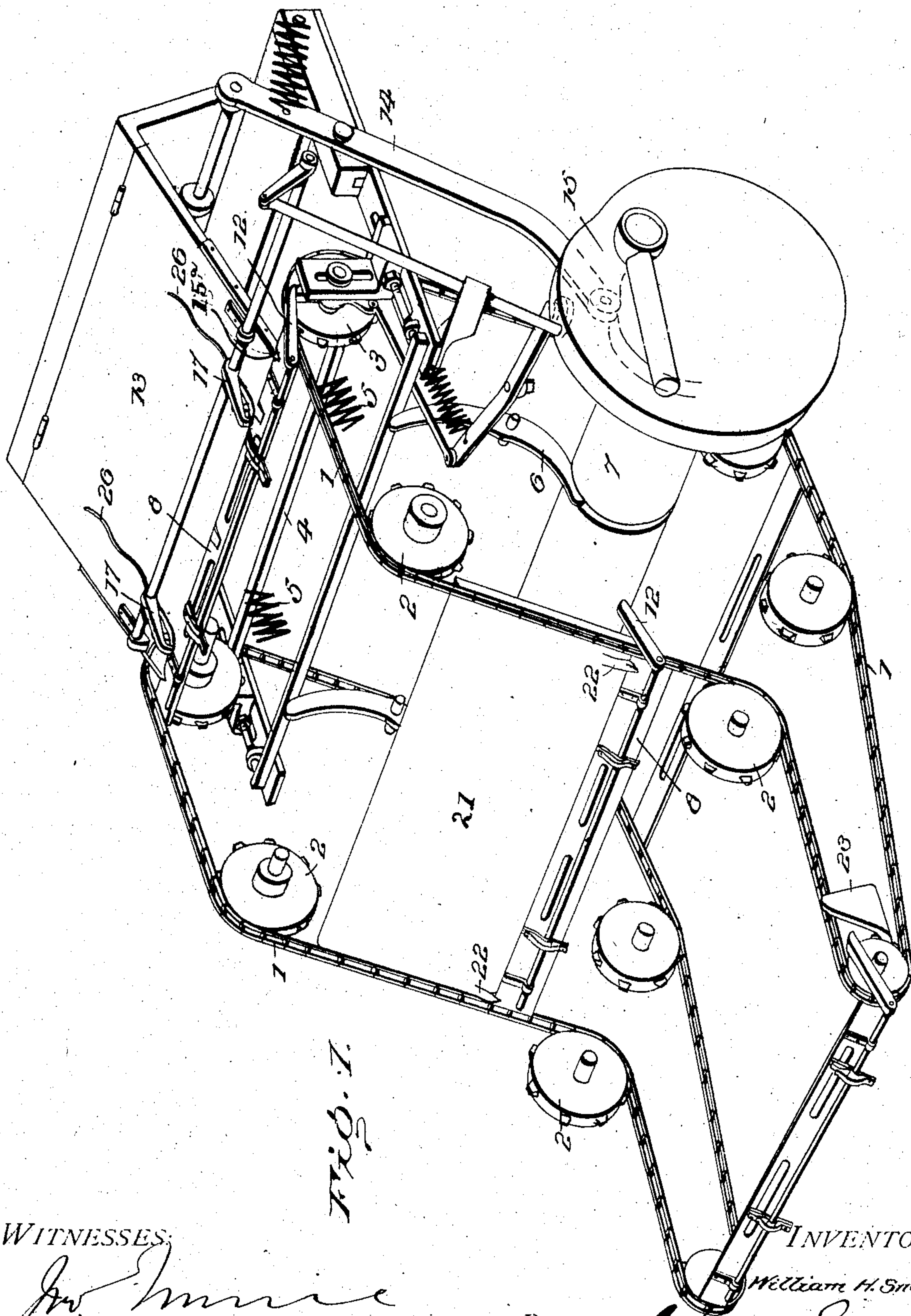


FIG. 1.

WITNESSES

*For Invention*  
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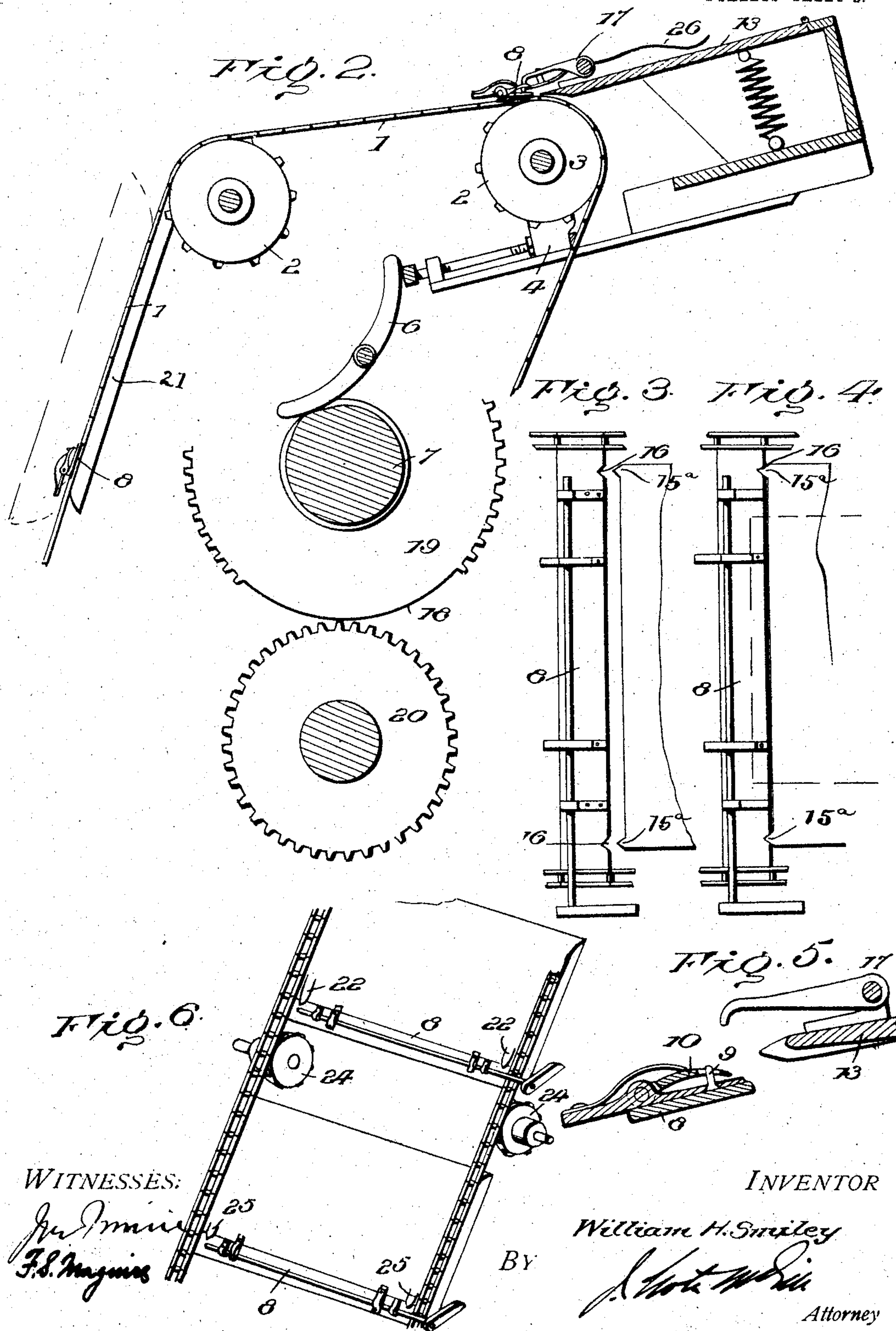
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# UNITED STATES PATENT OFFICE.

WILLIAM H. SMILEY, OF NILES, OHIO.

## PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 778,338, dated December 27, 1904.

Application filed July 14, 1903. Serial No. 165,465.

*To all whom it may concern:*

Be it known that I, WILLIAM H. SMILEY, of Niles, in the county of Trumbull and State of Ohio, have invented certain new and useful  
 5 Improvements in Printing-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 The object of this invention is to provide in a printing-press having means for conveying the stock therethrough means for effecting a perfect register between the stock and the conveying means before the latter takes hold.

15 A further object is to provide in a press of the character stated means for effecting a perfect register of the stock on the platen while hold thereon is retained by the conveying means; and a further object is to provide for  
 20 effecting such latter register in a multicolor-press.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

25 In the accompanying drawings, Figure 1 is a view in perspective, illustrating my improvements, a portion only of a printing-press being shown. Fig. 2 is a view in side elevation. Fig. 3 shows a gripper-bar before being moved  
 30 to register. Fig. 4 shows it after being moved to register. Fig. 5 shows the relative positions of the gripper and feed-table gages before the former is returned to register. Fig. 6 shows the application of my invention in mul-  
 35 ticolor-printing.

The main characteristics of my invention reside in first effecting a perfect register between traveling gripper-bars and the stock while on the feed-table and then after the  
 40 stock has been transferred by the grippers across the face of the platen again moving it to perfect register, although it is still retained by the gripper.

The improvement is also applicable in mul-  
 45 ticolor or other work requiring a plurality of imprints in one or more passages of the stock.

Briefly stated, my invention comprehends an endless conveyer traveling in one direction only and carrying grippers, but temporarily  
 50 arrested in its travel, and means for automat-

ically effecting a perfect register between the stock and the grippers while the forward travel of the latter is so arrested.

In all types of presses employing means for gripping the stock while in the position where  
 55 placed by hand or other means it is desirable to obtain an accurate register of the stock before the grippers close thereon. My invention further comprehends means for accom-  
 60 plishing this end. This is attained by first slightly pushing the stock back by the engagement therewith of the grippers themselves or a stop or stops bearing such relation thereto that the stock is moved into perfect register  
 65 before the closing of the grippers.

Referring to the drawings, 1 designates two sprocket-chains engaging at suitable points several sets of sprocket-wheels 2. The upper  
 70 rearmost set 3 of these wheels is mounted in a movable frame 4, which is normally held forward by suitable spring-pressure, as 5. This frame is engaged by levers 6, which under the action of a cam-roll 7 will force the frame rearward a slight distance, regulated  
 75 by the conformation of the cam-surfaces. These chains carry gripper-bars 8, which may be of any preferred form of construction. Suffice it to say that, as shown in Fig. 5, I find that highly-desirable results are attained by  
 80 equipping each gripper with upright pins 9, forming stops, and spring-pressed jaws 10, slotted to accommodate such stops and capable of being opened and closed by any suitable trip mechanism, as indicated at 12, Fig. 1.

The grippers as they rise on the back flight  
 85 of the chains and begin to travel forward pass beneath a pivoted feed-table 13, which for that purpose is temporarily slightly raised at its lower forward end by any suitable means actuated by the press mechanism, such as a  
 90 lever 14, shifted by a cam 15.

The table at its forward end is equipped with forwardly-extended pointed lugs 15<sup>a</sup>, preferably V shape in plan view. The gripper-bars are formed with correspondingly-  
 95 shaped notches or recesses 16. The stock when positioned on the feed-table is loosely held by gages 17. After a gripper-bar has moved forward sufficiently far to clear the feed-table and the latter has been lowered to  
 100



its normal position the gripper-bars are by a retrograde movement brought into perfect register with the stock, the lugs 15<sup>a</sup> of the feed-table coinciding perfectly with the notches of the gripper-bars. In this movement the stock is slightly moved back by the engagement therewith of the stop-pins 9. Thus the stock is moved to register with the grippers before being caught by them, the latter closing down thereon as soon as the gripper-bar after being moved to register starts to resume its forward travel. Of course the stop or stops for effecting this register of the stock may be the grippers themselves or a separate element or elements bearing the necessary relation thereto. To allow of the retrograde movement of the conveyer, it is necessary that at the proper moment the forward travel thereof should be arrested. This is capable of accomplishment in various ways; but that shown resides in having a blank segment, as at 18, in the periphery of the gear-wheel 19, allowing the actuated gear-wheel 20 of the conveyer to remain temporarily idle.

The sheet is carried forward by the grippers and down over the platen 21, which latter remains stationary, the type-carrying bed (not shown) being alone movable. This platen is equipped at its sides with forwardly-projecting slightly-raised V lugs or stops 22, corresponding to those of the feed-table. Now the gripper-bars bear such relation to one another that as the second gripper-bar is brought into line with the V-lugs 15<sup>a</sup> of the feed-table the forward gripper-bar bears the same relation to the lugs of the platen, with the result that as the retrograde movement moves the second gripper-bar into register with the feed-table the first or forward gripper-bar is moved into register with the lugs of the platen. Thereupon the imprint is made, the stock being held by suitable flappers (not shown) mounted above the platen. Thus it will be seen that not only is the stock moved to register by the grippers before being caught by the latter, but it is also moved to perfect register on the platen while still retained by the grippers. After the imprint is made the stock is carried forward and dropped at any desired point upon the gripper engaging a trip, as at 23.

I have shown in Fig. 6 two take-up wheels 24 engaging the conveyer-chains between two platens. This is desirable where two separate imprints are required, as in multi-color-printing. The wheels 24 serve to remove any slack in the chains between the two gripper-bars, and thus insure holding the forward one up against the lugs 25.

In operation the stock which is placed on the feed-table either by hand or machinery is retained by springs 26 of the gages 17. This is not disturbed by the slight raising of the table to allow the grippers to pass thereunder. As a gripper comes in front of the table the

latter is lowered and the frame is caused to move backward, effecting a perfect register with the stock before gripping it and by the time it is held tight against the V-lugs 15<sup>a</sup> of the table. A like reverse movement is imparted to each gripper-bar in being moved to register over the platen or platens, and the space between the several gripper-bars is such that, preferably, at least, as one is being moved to register with the feed-table another is likewise being moved relatively to the platen.

I do not mean to be understood in the present application as confining myself to any special mechanism or arrangement of parts for carrying my invention into practice. It is obvious that various means might be employed and still be within the scope of the broad idea herein involved. It is also obvious that the same results may be secured by moving the feed-table into register with the grippers while the forward travel of the latter is arrested instead of moving them rearwardly into engagement with the table.

I claim as my invention—

1. In a printing-press, in combination, means for temporarily holding the stock, grippers for carrying the same to the press-platen, such grippers being movable in approximate parallelism to the stock, means for temporarily arresting such grippers, and means for automatically effecting a register between the stock and the grippers before the latter resume their forward travel, as set forth.
2. In a printing-press, in combination, means for temporarily holding the stock, grippers for carrying the same to the press-platen, such grippers being movable first in approximate parallelism to the stock, and means for moving the grippers in a reverse direction into register with the stock before gripping and carrying the same forward, substantially as set forth.
3. In a printing-press, in combination, a movable feed-table, an endless conveyer, grippers carried by the latter and normally movable forward from, and in close relation to, such table, means for temporarily arresting such conveyer and grippers, and means for automatically effecting a register between the table and the grippers while the forward travel of the latter is arrested, as set forth.
4. In a printing-press, in combination, a feed-table, an endless conveyer, grippers carried by the latter and normally movable forward from, and in close relation to, such table, and means for automatically moving such grippers rearward into register with stock held on such table, as set forth.
5. In a printing-press, in combination, a feed-table, having gages against which the stock is temporarily positioned, an endless conveyer, grippers carried by the latter and normally movable forward from, and in close relation to, such gages, and means for auto-



atically moving such grippers rearward into register with the stock held by such gages, as set forth.

6. In a printing-press, in combination, a feed-table having gages, an endless conveyer movable forward from beneath such table, grippers carried by such conveyer, said conveyer being automatically arrested as the grippers pass forward from beneath the table, and means for automatically moving the grippers into register with the stock while the conveyer is so arrested, as set forth.

7. In a printing-press, in combination, a feed-table having gages and forwardly-extended lugs, an endless conveyer movable forward from beneath such table, grippers, bars therefor carried by said conveyer having notches therein, said conveyer being automatically arrested as the gripper-bars pass forward from beneath the table, and means for automatically moving the gripper-bars rearward to cause said notches to register with said lugs, substantially as set forth.

8. In a printing-press having a platen and stops thereon, in combination, a series of gripper-bars movable over such platen, such bars being arrested after passing such stops, and means for automatically moving the gripper-bars rearward into register with said stops, as set forth.

9. In a printing-press having a platen, in combination, a series of gripper-bars movable over such platen and having notches therein, said bars being arrested after passing such stops, and means for automatically moving the gripper-bars rearward to cause their notches to aline with said stops before resuming their forward travel, as set forth.

10. In a printing-press, in combination, means for temporarily holding the stock, a series of grippers for conveying the same forward, the platen having stops, such grippers being movable in approximate parallelism to the stock and the platen and being arrested after passing the stock and the stops, and means for moving the grippers in a reverse direction into register with the stock and the stops before resuming their forward travel, as set forth.

11. In a printing-press, in combination, a feed-table having gages and forwardly-extended lugs, a platen having forwardly-extended stops, a series of gripper-bars movable forward beneath said table and over said platen, each bar having notches therein, said gripper-bars being arrested after passing said lugs and stops, and means for automatically reversing the travel of said gripper-bars, while so arrested, to move their notches into register with said lugs and stops, as set forth.

12. In a printing-press, in combination, a series of gripper-bars, endless chains carrying the same, sprocket-wheels therefor, a movable frame for one set of such wheels, a feed-table

having gages, said table being located above the forward flight of such chains, means for operating the chains, such means automatically arresting the chains as a gripper-bar passes clear of such feed-table, and means for then moving such frame rearward to effect a register between the gripper and the stock held by said gages, substantially as set forth.

13. In a printing-press, in combination, a series of gripper-bars, endless chains carrying the same, sprocket-wheels therefor, a movable frame for one set of such wheels, a feed-table having gages, said table being located above the forward flight of such chains, the platen having stops, means for operating the chains, such means automatically arresting the chains as the several gripper-bars pass clear of such feed-table and stops, and means for then moving such frame rearward to effect a register between the grippers of one bar and the stock and between a second gripper-bar and the stops of the platen, substantially as set forth.

14. In a printing-press, in combination, platens having two series of stops, a series of gripper-bars movable over such platens, such gripper-bars being arrested after passing such stops, means for then moving such bars into register with said stops, and means intermediate the two series of stops for insuring the register between one gripper-bar and one set of stops, substantially as set forth.

15. In a printing-press, in combination, means for temporarily holding the stock, a series of grippers, endless conveyers therefor, stops on the platen with which the grippers are designed to register, means for temporarily arresting such grippers, and means for automatically effecting a register between the stock and one set of grippers while a forward set of grippers is moved to register with the stops of the platen, as set forth.

16. In combination with a platen printing-press and a feed-table whereon the stock is positioned, grippers for positioning the stock relative to the platen, said grippers being designed to first move the stock to register before gripping, and means for, first, so moving the grippers to register the stock, and then to position the stock on the platen ready for printing.

17. The combination with a platen printing-press, and a feed-table whereon the stock is positioned, of grippers for positioning the stock ready for printing, a stop or stops carried by the grippers for engaging the forward end of the stock and moving it to register before the grippers close thereon, and means for moving the stops to register the stock and then to cause the grippers to position the stock ready for printing.

18. In combination with a platen printing-press and a feed-table whereon the stock is positioned, grippers for positioning the stock relative to the platen, said grippers carrying



stops for engaging the stock and moving it to register before the grippers close thereon, and means for first so moving the grippers and stops, and then, after the grippers have  
5 closed, to position the stock on the platen ready for printing.

In testimony whereof I have signed this

specification in the presence of two subscribing witnesses.

WILLIAM H. SMILEY

Witnesses:

LUCILE MATTHEWS,  
JEAN VAIL.