C. K. RIECK.

MONOTYPE MACHINE.

APPLICATION FILED JUNE 14, 1909.

955,839. **Patented Apr. 19, 1910.**

4 SHEETS—SHEET 1.

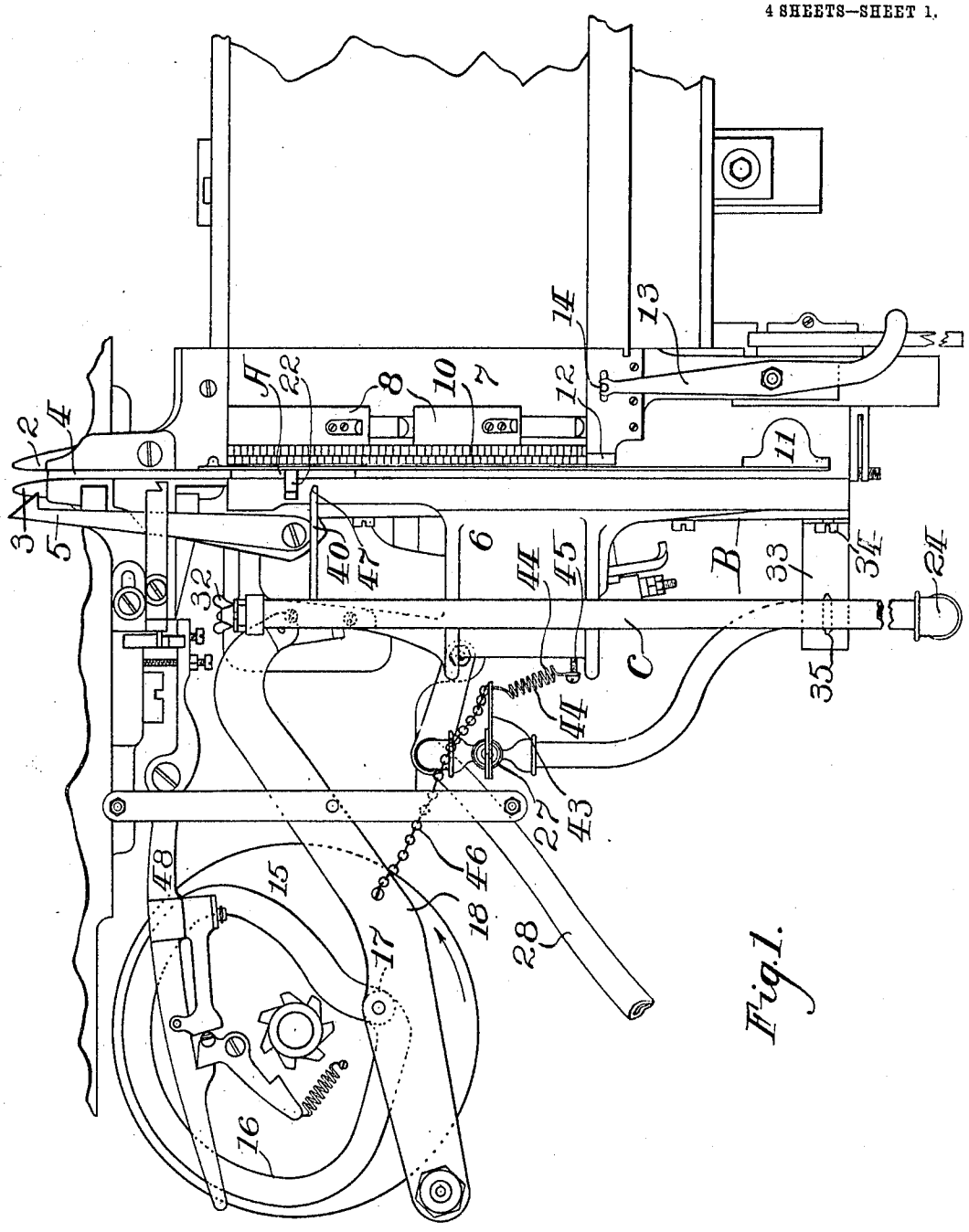

Fig. 1.

Witnesses:
Jule Donovan.
H. L. Fischer

Inventor:
Charles K. Rieck,
by: H. G. Bradbury
Attorney.

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

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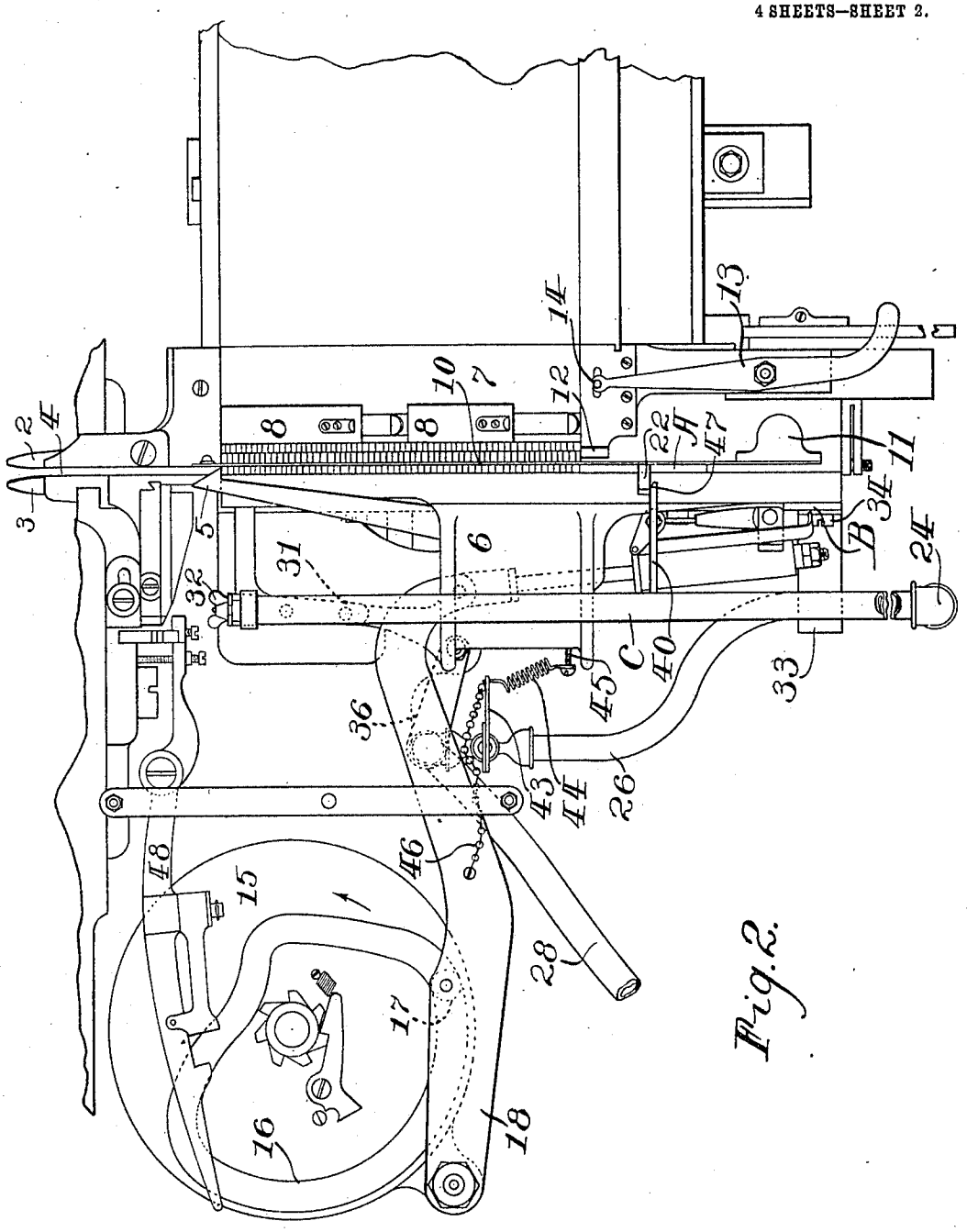

Fig. 2.

Witnesses:
Jule Donovan.
H. L. Fischer

Inventor:
Charles K. Rieck,
by: F. G. Bradbury
Attorney

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

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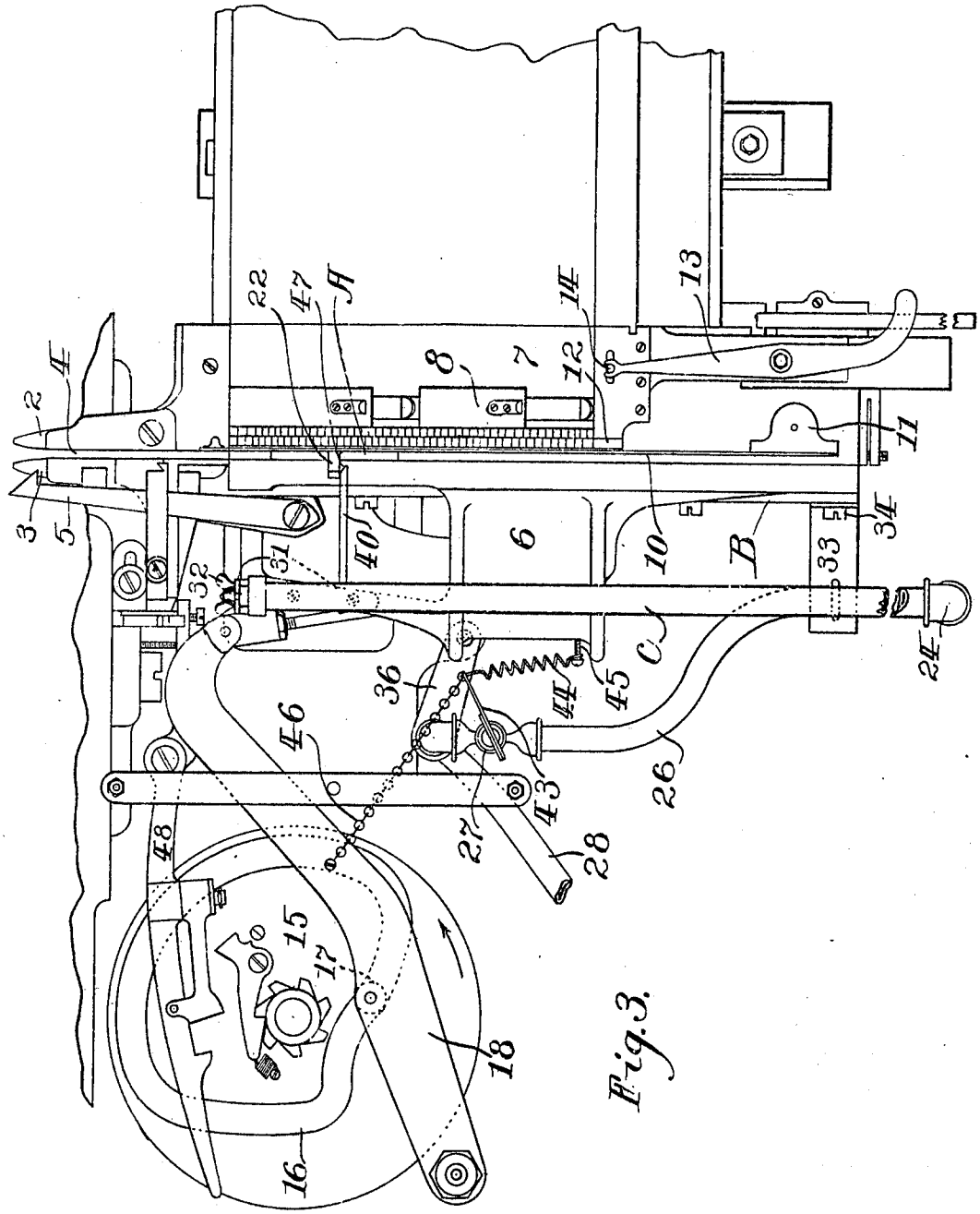

Fig. 3.

Witnesses:
Jule Donovan.
H. L. Fischer

Inventor:
Charles K. Rieck,
by: L. Bradbury
Attorney.

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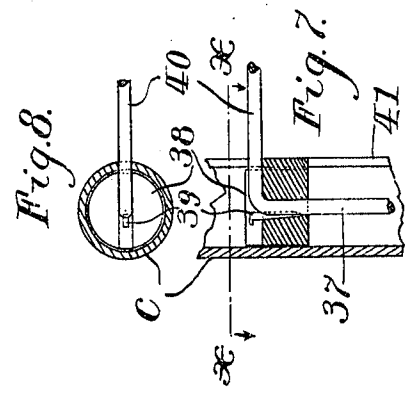

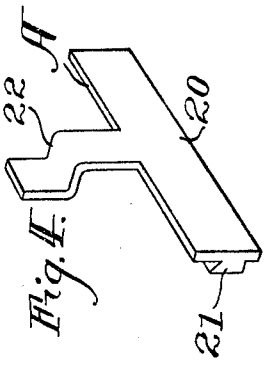

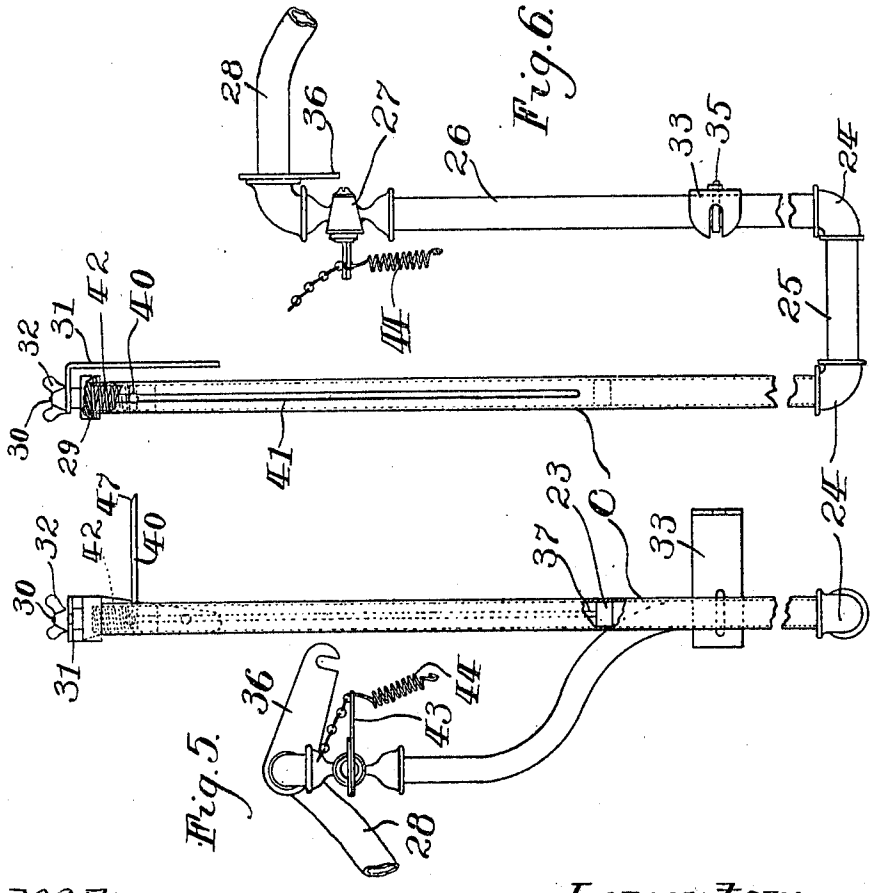

Witnesses:

J. le Donovan.

H. Fischer

Inventor:

Charles K. Rieck,

by: F. G. Bradbury

Attorney.

UNITED STATES PATENT OFFICE.

CHARLES K. RIECK, OF ST. PAUL, MINNESOTA.

MONOTYPE-MACHINE.

955,839. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed June 14, 1909. Serial No. 502,014.

To all whom it may concern:

Be it known that I, CHARLES K. RIECK, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Improvement in Monotype-Machines, of which the following is a specification.

My invention relates to improvements in monotype machines and more particularly to means for automatically returning the line support to initial position after each line of type has been set up in the type channel and pushed on to the type channel plate. Heretofore the line support has been returned to initial position by hand and where any attempts have been made to return the line support mechanically, the construction has been so complicated and liable to disorder that it has failed in practical service.

The primary object of my invention is to overcome the above defect and to produce apparatus for returning the line support to initial position which is simple and inexpensive in construction and easy to operate. This device can be used for long or short lines of type while with prior devices auxiliary mechanism is required for restoring the line support in long lines such as forty-two pica and more.

In the accompanying drawings forming part of this specification Figure 1 is a plan view of a detail of a monotype machine showing my invention applied thereto and the line support in initial position and in readiness to permit a line of type to be set up in the type channel; Fig. 2 is a view similar to Fig. 1 showing a complete line of type set up in the type channel and the line support in readiness to be returned to initial position; Fig. 3 is a view similar to Fig. 1 after a line of type has been pushed on to the type channel plate and the line support is being returned to initial position; Fig. 4 is a perspective view of the line support; Fig. 5 is a plan view of my improvement removed from the monotype machine; Fig. 6 is a side view of Fig. 5 a portion of the cylinder being shown in section to expose the interior construction; Fig. 7 is a sectional view of the cylinder showing a portion of the carrier and the carrier guide in section, and Fig. 8 is a cross-sectional view taken on the line X—X of Fig. 7.

In the drawings is illustrated a portion of an ordinary monotype machine to which my invention is applicable it being understood that the particular construction of the machine is only illustrated for the purpose of showing one way in which my invention can be reduced to practice.

It is to be understood that the parts forming my invention may be subject to various modifications permitting the same to be used with any kind of a type setting machine employing a line support coöperating with the type which is set up for use.

2 represents a type channel plug latch and 3 a type channel plug clamp latch both of said parts being adapted to coöperate with fixed type channel plugs of ordinary construction which are not illustrated. Leading from said latches is the usual type channel 4 into which the type is adapted to be received while being set up. Adjoining the type channel is illustrated the upper line hook 5 which operates in the usual manner to move each line of type along the type channel to register with the galley frame. As fast as the lines of type of the desired length, are set up, and made to register with the galley frame they are moved automatically by a column pusher 6 on to the type channel plate 7 and galley pan 9 the usual column supports 8 being employed. A rule 10 is used along the galley side of the type channel and is adapted to be raised vertically as each line of type is set up by the usual rule lifting rod support 11.

12 represents the stop slide for long and short lines of type, 13 the stop slide lever and 14 the stop slide pin between the stop slide and said lever. Working freely in the type channel is a line support A to be hereinafter more particularly described.

15 represents the galley cam having a cam groove 16 in which a cam roller pin 17 runs the latter being carried by the usual line hook operating slide lever 18. This line hook operating slide lever has operative connection with the line hook to reciprocate the latter along the type channel. The lines of type accumulating on the galley pan form a column in the usual manner.

The parts of the machine above set forth obviously are provided with a suitable frame work B to which parts of my improvement are adapted to be fastened to support them in coöperative position.

My invention includes a carrier which is automatically operated to return the line support to initial position, that is in position when a line of type is about to be set

up in the type channel. The line support A is formed with the usual guide bar 20 having sliding connection by means of a tenon 21 with one side of the type channel and is provided with an upwardly projecting lug 22 the extremity of which is offset toward the galley cam side of the machine.

Placed alongside of the type channel and spaced therefrom is a longitudinal pneumatic cylinder C in which is a piston 23. The pressure end of the cylinder has connected thereto by means of elbows 24 a vertical section of pipe 25 and a horizontal section 26 the latter being provided with an operating valve 27 for admitting compressed air from a source of air pressure leading through the pipe 28. The outer end of the cylinder is provided with a cap 29 which is threaded thereon and formed with a threaded stud bolt 30 passing through a bracket 31 and secured thereto by means of the thumb nut 32. The bracket 31 is adapted to be secured to the frame of the machine to support the outer end of the cylinder. The live end of the cylinder is held by means of a bracket 33 said bracket being secured to the frame by means of the screw 34 and to the pipe 26 by means of the clamp bolt 35. The portion of the pipe immediately adjoining the valve is additionally supported by means of the bracket 36 which is also secured to the frame. The piston 23 is provided with a rod 37 which extends longitudinally in the cylinder toward the outer end and passes through a guide 38 to which it is secured by means of the key 39. After passing through the guide, the rod is bent outwardly through a slot 41 in the side of the cylinder and forms a resilient carrier arm 40 which is adapted to engage the lug 22 on the line support and return the latter to initial position. The slot 41 extends a sufficient distance along the side of the cylinder to permit the carrier moving freely the required length when a line of type is being set up in the type channel and the cylinder is of sufficient length to allow the piston to act under air pressure all of the time while the carrier is being returned to initial position. In the outer end of the cylinder is a jar absorbing coil spring 42 against which the inner end of the carrier 40 is adapted to impinge and gradually stop the return movement of the carrier to initial position when acted upon through the piston 23 by compressed air admitted through the valve 27. The valve 27 is provided with a controlling lever 43 one end being secured to a tractile spring 44 which closes the valve, said spring being secured in the frame of the machine by the bolt 45. The opposite side of the controlling lever to which the tractile spring is attached is connected by a chain 46 to the line hook operating slide lever 18 so that when the galley cam is tripped and the line hook operating slide lever is swung down in the cam groove the valve 27 is opened and compressed air admitted from the supply pipe 28 against the piston 23 thus forcing the carrier 40 toward the outer end of the cylinder and carrying with it the line support until it reaches initial position. Upon the completion of the movement of the galley cam, the cam roller pin rides upon the high portion of the cam surface and releases the valve controlling lever thus permitting the tractile spring 44 to close the valve. The piston 23 fits loosely in its cylinder so that as the line of type is formed in the type channel the carrier and piston can be moved back into position to return the line support when a succeeding line of type is set up in the type channel. The outer end of the carrier 40 is beveled at 47 and the carrier has sufficient resiliency to allow it to spring back, the beveled end sweeping over the lug on the line support should undue pressure be produced by the type against the line support as when the trip lever 48 is not properly manipulated to release the galley cam and cause the column pusher to operate as the end of the line of type is reached.

In operation the type are stacked in the type channel and when a sufficient number has been placed in the channel to form a line, the trip lever releases the galley cam and the line hook carries a line of type forward in the type channel to register with the galley frame. The rule 10 then rises and the column pusher moves the line of type on to the type channel plate pressing the column supports back to make room therefor. As the galley cam revolves the valve 27 is opened against the tension of the spring 44 by means of the line hook operating slide lever whereupon the piston 23 in the cylinder C moves the carrier 40 and its guide 38 toward the outer end of the cylinder at the same time carrying the line support back from the position shown in Fig. 2 to the position shown in Fig. 1. After the line support reaches its initial position the line hook operating slide lever releases the valve and permits the spring 44 to close it automatically. The shock absorbing spring 42 forms a cushion for the carrier at the outer end of its stroke. When the line hook moves the line of type forward to register with the galley frame, the line support is moved back and returns the carrier to the position illustrated in Fig. 2, in readiness to repeat the operation.

In accordance with the patent statutes I have described the principles of operation of my invention together with apparatus which I now consider to represent the best embodiment thereof but I desire to have it understood that the construction shown is

only illustrative and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following claims.

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

1. In apparatus of the class set forth, line forming mechanism having a type channel, a line support adapted to travel in said channel from initial to full line positions, a cylinder adjoining said channel and connected with a source of air supply, a valve controlling said supply, a piston in said cylinder and a carrier connected with said piston and adapted to impinge against said support to return it in said channel to initial position.

2. In apparatus of the class set forth, line forming mechanism having a type channel, a line support adapted to travel in said channel from initial to full line positions, a cylinder connected with a source of air pressure supply, a valve controlling said supply, a piston in said cylinder having a carrier for said support to return it to initial position and means for automatically operating said valve to open it when a line of type has been completed and close it when said support is returned to initial position.

3. In apparatus of the class set forth, line forming mechanism having a type channel, a line support adapted to travel in said channel from initial to full line positions, a galley cam, a line hook operating slide lever connected by said cam, a cylinder connected with a source of air pressure supply, a valve controlling said supply, a piston in said cylinder having a carrier for said support to return it to initial position, a spring tending to hold said valve closed and a connection between said slide lever and valve to open the latter when a line of type is set up and pushed out of the type channel.

4. In apparatus of the class set forth, line forming mechanism having a type channel, a line support adapted to travel in said channel from initial to full line positions, a cylinder adjoining said channel and connected with a source of pressure supply, means for controlling said supply, a piston in said cylinder and a carrier associated with said piston and impinging against said support to return the latter in said channel to initial position.

5. In apparatus of the class set forth, line forming mechanism having a type channel, a line support adapted to travel in said channel from initial to full line positions, a cylinder adjoining said channel and connected with a source of pressure supply, a valve controlling said supply, a piston in said cylinder and a resilient carrier associated with said piston and support to return the latter in said channel to initial position and permitting said support to sweep over said carrier when too long a line of type is set up in said channel.

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

CHARLES K. RIECK.

Witnesses:
H. L. FISCHER,
JULE DONOVAN.