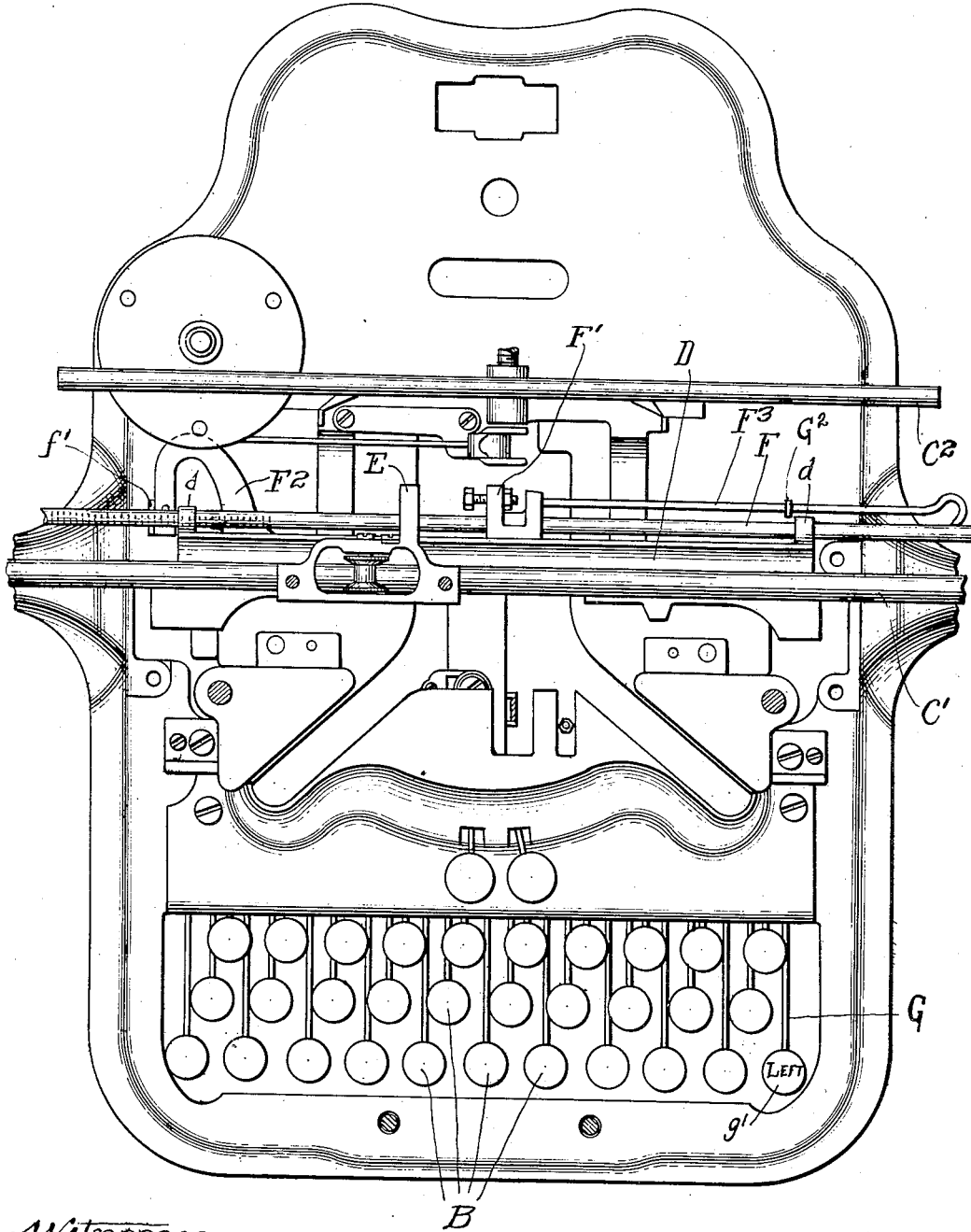


T. L. KNAPP.
TYPE WRITING MACHINE.
APPLICATION FILED JAN. 24, 1914.

1,112,626.

Patented Oct. 6, 1914.
3 SHEETS—SHEET 1.

Fig. 1.



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Eugene C. Wann

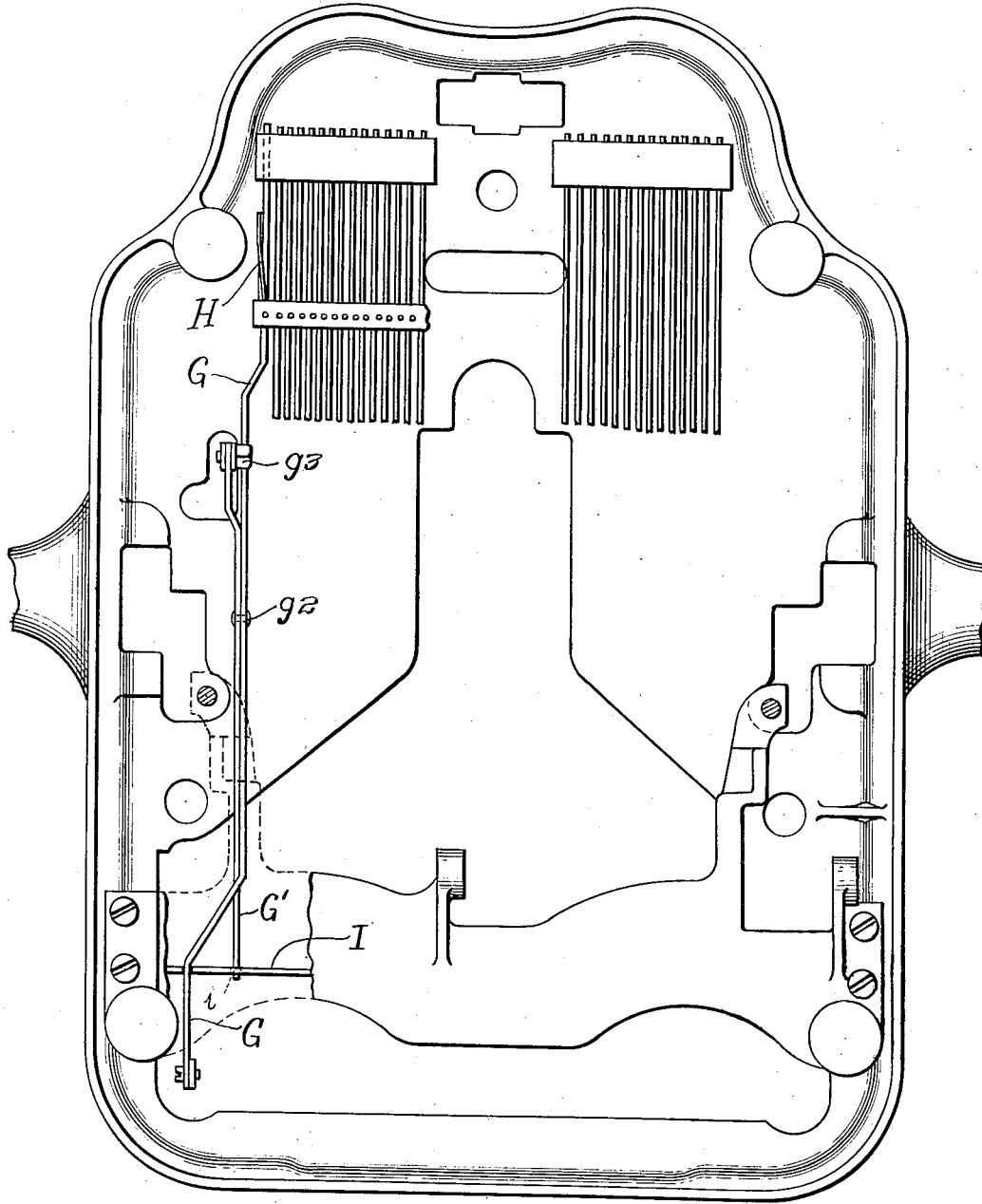
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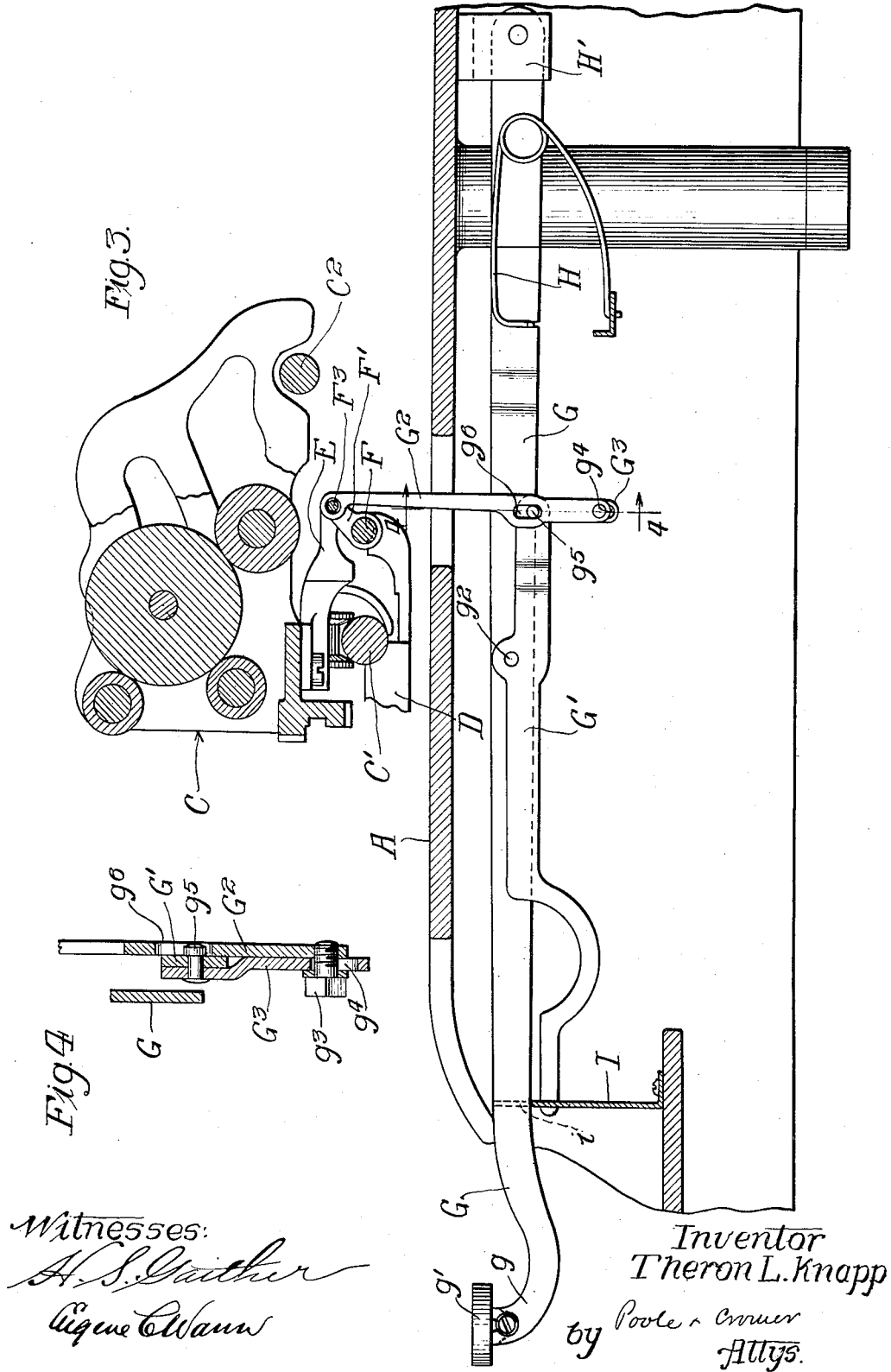
Patented Oct. 6, 1914.
3 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

THERON L. KNAPP, OF WOODSTOCK, ILLINOIS, ASSIGNOR TO THE OLIVER TYPEWRITER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

TYPE-WRITING MACHINE.

1,112,626.

Specification of Letters Patent.

Patented Oct. 6, 1914.

Application filed January 24, 1914. Serial No. 814,023.

To all whom it may concern:

Be it known that I, THERON L. KNAPP, a citizen of the United States, and a resident of Woodstock, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in Type-Writing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in typewriting machines, and embraces an improved left-hand margin stop mechanism for limiting the movement of the paper-carriage toward the right in the return of the carriage to its starting point, and thereby determining the width of margin at the left-hand side of the typewritten page, while permitting the carriage to have a further movement when it is desired to do writing on the left-hand marginal part of the sheet.

The several improvements are shown as applied to the "Oliver" typewriting machine; but some of the improvements herein set forth may be applied to other types of machines.

The invention consists in the matter hereinafter set forth, and more particularly pointed out in the appended claims.

In the accompanying drawings—Figure 1 is a plan view of the frame of a typewriting machine, showing only the parts relating to the invention; Fig. 2 is a view from beneath, of the same parts; Fig. 3 is a view in vertical section, taken longitudinally through the machine frame, showing in side elevation the carriage-stop operating devices; Fig. 4 is a detail section, taken on line 4—4 of Fig. 3.

As before stated, my improvements are shown as applied to an "Oliver" typewriting machine, and only such parts of said machine are shown and herein referred to as are necessary to an explanation of the construction and application of the several improvements constituting my invention.

I will first refer briefly to the general construction of such parts of the machine herein illustrated as is necessary to an understanding of the application of my improvements to the machine.

The machine frame or base is provided with a horizontal top-plate A and the key-levers B, B extend from front to rear of the machine with their rear portions beneath said top-plate, and are pivoted at their rear ends in bearing blocks H' that are secured to and depend from the top-plate A at the rear of the base. A shift-frame D is mounted on the machine-frame and is movable thereon backwardly and forwardly from a central position, whereby the platen may be brought under the striking-point of three sets of types on the type-bars. Said shift-frame embraces front and rear horizontal guide-bars C', C², on which the paper-carriage C (Fig. 3.) rests and travels endwise in the printing operation.

Referring now to the construction of the left-hand-margin stop mechanism, the same is made as follows: A horizontally arranged rod F is mounted in lugs d, d on the shift-frame, at the right-hand side of the machine and at the rear of the carriage-supporting guide-bar C' and parallel with said guide-bar. Said rod F is adapted to be moved endwise with respect to the shift-frame and also to rock or rotate in the lugs d. The rod F carries a rearwardly projecting stop-arm F', which is adapted for contact with a stop-arm or lug E, which is rigidly attached to the carriage-frame and moves with the carriage. The rod F is adjustably held in place by a spring actuated pawl F², having the form of a spring arm, which is secured to the shift-frame and has an upwardly extending tooth or pawl f' which engages a series of teeth or notches on the under side of the rod F. See dotted lines Fig. 1. Said pawl bears upwardly against the notched side of the rod when the stop-arm F' is in operative position,—that is to say, when it is in the path of the carriage lug E—and said pawl at this time prevents endwise movement of the rod. When the rod is partially rotated, the pawl is brought into contact with the smooth part of the rod, thereby permitting said rod to be moved endwise to adjust the stop-arm F' with respect to the travel of the carriage in a manner to vary the width of the blank space or margin left on the left-hand side of the sheet in writing.

The parts of the machine thus briefly described are generally like the corresponding

parts shown in the prior United States Letters Patent to Thomas Oliver, No. 599,863, granted March 1st, 1898, and to T. L. Knapp, No. 693,033, granted February 11th, 1902.

The rod F is adapted to be rotated in the bearing-lugs *d, d* through the medium of a lever mechanism, located at the right-hand side of the machine base and including a key-lever G which is connected by operative connections with the rod F in a manner to rock or partially rotate the same, while permitting endwise adjusting movement of said rod F, relatively to the said key-lever and connections. The connection herein shown between said lever and the rod F embraces a rod F³ and an upright link G². The rod F³ is arranged parallel with said rod F at the rear of the latter, and is rigidly connected therewith. As shown, the said rod F³ is attached at its inner end to the stop-arm F' and at its outer end is bent toward and secured to the rod F at the right-hand end of the latter. The link G² is provided at its upper end with an aperture through which said rod F³ passes, and said rod fits loosely within said aperture, so as to enable the same to slip endwise therethrough when the rod F is moved endwise to adjust the position of the stop-lug F'.

The key-lever G is provided at its forward end with an upright arm *g*, surmounted by a key *g'* to which the finger is applied for depressing the forward end of said lever. The key-lever G is pressed upwardly by a lifting-spring H, (see Fig. 3) located between the key-lever and the base of the machine. Said spring when the lever is released, acts to return the lever to its uppermost position, and thereby rocks the rod F to its normal position and swings the stop-arm F' thereof upwardly into the path of the stop-lug E of the carriage. When a given width of margin is desired, said rod is adjusted to bring the stop-arm F' thereof in position to stop the carriage at the proper point in its travel to produce such width of margin. So long as no writing is to be done upon the margin the stop-arm F' will not be disturbed. If, however, it is desired to print a letter or word upon the determined margin, the stop-arm F' is swung downwardly out of the way of the stop-lug E of the carriage by depressing the key-lever G, after which the carriage may pass beyond the limit of movement before determined by the stop-lug and stop-arm.

The key-lever G is shown as pivoted at its rear end to one of the bearing blocks H', which also forms a bearing for the rear ends of the main type-operating key-levers B, B at the right-hand side of the machine. The forward end of said key-lever G is located at the front of the machine, with its

key *g'* in line transversely with the forward row of keys on the type-operating key-levers. The forward end of said key-lever G is guided in a vertical guide-slot formed in a fixed comb-plate I, by which the forward ends of the main key-levers are also guided. A secondary lever G' is located at one side of and parallel with the lever G and is pivotally or loosely connected at its forward end with the machine frame. As shown, said forward end of the lever G' is loosely held in place by engagement with a vertical slot or aperture *i* formed in the comb-plate I. The rear end of the lever G' is located vertically beneath the rod F³. The key-lever G is connected with the secondary lever G' by means of a pivot stud *g*² extending through both of the levers at a point between the forward ends of the said levers and the rear end of the secondary lever G'. As illustrated, the forward end of the key-lever G is located at the right-hand side of the forward end of the auxiliary lever G', and said key-lever is bent laterally to provide an oblique part which passes over the auxiliary lever, which latter is provided with a U-shaped bend at the crossing point, to prevent interference of one lever with the other.

The link G² is pivoted at its lower end to the rear end of the secondary lever G', so as to partake of the rising and falling movement imparted to said lever G' by the action of the lever G and its lifting spring. By the employment of the secondary lever G', which is engaged with the machine frame at its forward end, in connection with the lever G, which is pivoted to the machine frame at its rear end, the proper extent of vertical movement is afforded in the link G², without requiring an undue extent of vertical movement in the forward end of the key-lever G.

To provide means for adjusting the position of the link G² relatively to the lever G', in order that the position of the stop-arm F', at the upper and lower limits of its throw, may be properly adjusted relatively to the stop on the carriage frame and other parts, a construction is provided as follows: The link G² is extended at its lower end a considerable distance below the rear end of the lever G', and an upright arm G³, rigidly affixed at its lower end to the lower end of the link, and pivoted at its upper end to the lever G', is employed to connect the link with said lever. Said arm G³ is preferably so arranged that the lever G' is located between its upper end and the link G². An adjustable connection is provided between the said link and the arm G³, consisting of a clamp-bolt *g*³, which passes through a vertical slot in one of said parts. As shown, the arm G³ is provided with a slot *g*⁴, and the clamp-bolt *g*³

passes through such slot and is inserted in a screw-threaded aperture in the link. The clamp-bolt and slot, arranged as described, enable the link to be shifted vertically with relation to the arm G^3 and lever G' , and to be rigidly held in its adjusted position, and also afford a rigid connection between said arm and the link. The upper end of said arm is pivoted to the lever G' by means of a pivot-stud g^5 , affording a pivot on which swings both the said arm and link, when the upper end of the link is moved forwardly and rearwardly in the swinging movement of the rod F^3 about the axis of rotation of the rod F . As illustrated, the link G^2 is located closely adjacent to, or in contact with, the lever G' , and, in order to provide space for the head of the pivot-stud g^5 , said link is provided with a vertically extending slot or opening g^6 , made of sufficient width to receive the head on the adjacent end of the pivot stud. The link G^2 and arm G^3 are arranged to extend a considerable distance below the levers G and G' , in order that access may be easily had to the clamp-bolt in effecting adjustment of the link relatively to the arm.

It is to be understood that a device embodying the features of construction set forth may be variously modified in practice with respect to its details of construction, and I do not, therefore, desire to be limited to the particular construction illustrated in the drawings, except so far as set forth in the appended claims.

I claim as my invention:

1. A carriage-stop device, comprising, in combination with a carriage-supporting frame and a rod adapted to rotate and slide endwise in said frame and provided with a stop-arm, means for rotating said rod to swing the stop-arm out of its carriage-arresting position, comprising a second rod arranged parallel with, and rigidly attached to, said rotative rod, a key-lever pivotally supported at its rear end, a secondary lever pivotally supported at its forward end and connected between its ends with the said key-lever, and a link connected with the rear end of the secondary lever and having sliding connection with said second rod.

2. The combination with a machine frame and a shift-frame mounted on the machine frame and adapted to support the paper-carriage, of a margin stop, consisting of a rod mounted to rotate in the shift-frame and provided with a stop-arm, and means for rotating said rod to swing the stop-arm out of its carriage-arresting position, comprising a key-lever pivoted at its rear end to the rear part of the machine frame, a secondary lever having pivotal connection at its forward end with the forward part of the machine frame and connected between its ends with said key-lever, and a link connected

with the rear end of said secondary lever and having operative connection with said rotative rod.

3. The combination with a carriage-supporting frame, of a margin stop, consisting of a rod mounted to rotate in said frame and provided with a stop-arm, and means for rotating said rod to swing the stop-arm out of its carriage-arresting position, comprising a key-lever pivotally supported at its rear end, a secondary lever pivotally supported at its forward end and connected between its ends with the key-lever, a link connected at its lower end with the rear end of said secondary lever and having operative connection at its upper end with said rotative rod, and means connecting the said link with said secondary lever, affording vertical adjustment of said link relatively to said secondary lever.

4. The combination with a carriage-supporting frame, of a margin stop, consisting of a rod mounted to rotate in said frame and provided with a stop-arm, and means for rotating said rod to swing the stop-arm out of its carriage-arresting position, comprising a key-lever pivotally supported at its rear end, a secondary lever pivotally supported at its forward end and connected between its ends with the key-lever, a link having operative connection at its upper end with said rotative rod, and means connecting the lower end of said link with said secondary lever, embracing an arm, parallel with the link, having pivotal connection with the said secondary lever and rigidly attached to the link by means affording adjustment of the said arm endwise relatively to the link.

5. The combination with a carriage-supporting frame and a margin stop, consisting of a rod mounted to rotate in said frame and provided with a stop-arm, of means for rotating said rod to swing the stop-arm out of its carriage-arresting position, comprising a substantially horizontal, vertically swinging lever, a link having operative connection at its upper end with said rotative rod, an arm connecting the lower end of said link with said lever, said arm being pivoted to the lever, and means affording adjustable and rigid connection of said arm with said link, comprising a slot in one of said parts and a clamp-screw inserted through the other of said parts and said slot.

6. The combination with a machine frame and a shift-frame, of a margin stop, consisting of a rod mounted to rotate in said shift-frame and provided with a stop-arm, and means for rotating said rod to swing the stop-arm out of its carriage-arresting position, comprising a substantially horizontal key-lever pivoted at its rear end to the rear part of the machine frame, a sec-

ondary lever pivoted at its forward end to
the machine frame and connected between
its ends with said key-lever, an upright link
connecting the rear end of said secondary
5 lever with the rotative rod, said link ex-
tending at its lower end below the secondary
lever, and means for connecting said link
with the secondary lever, embracing an arm
pivoted at its upper end to, and extending
10 downwardly from, the secondary lever, and
means rigidly connecting the lower end of

said arm with said link, affording vertical
adjustment of the arm relatively to the link.

In testimony, that I, claim the foregoing
as my invention I affix my signature in the 15
presence of two witnesses, this 19th day of
January A. D. 1914.

THERON L. KNAPP.

Witnesses:

EUGENE C. WANN,
MAURICE D. HERMAN.
