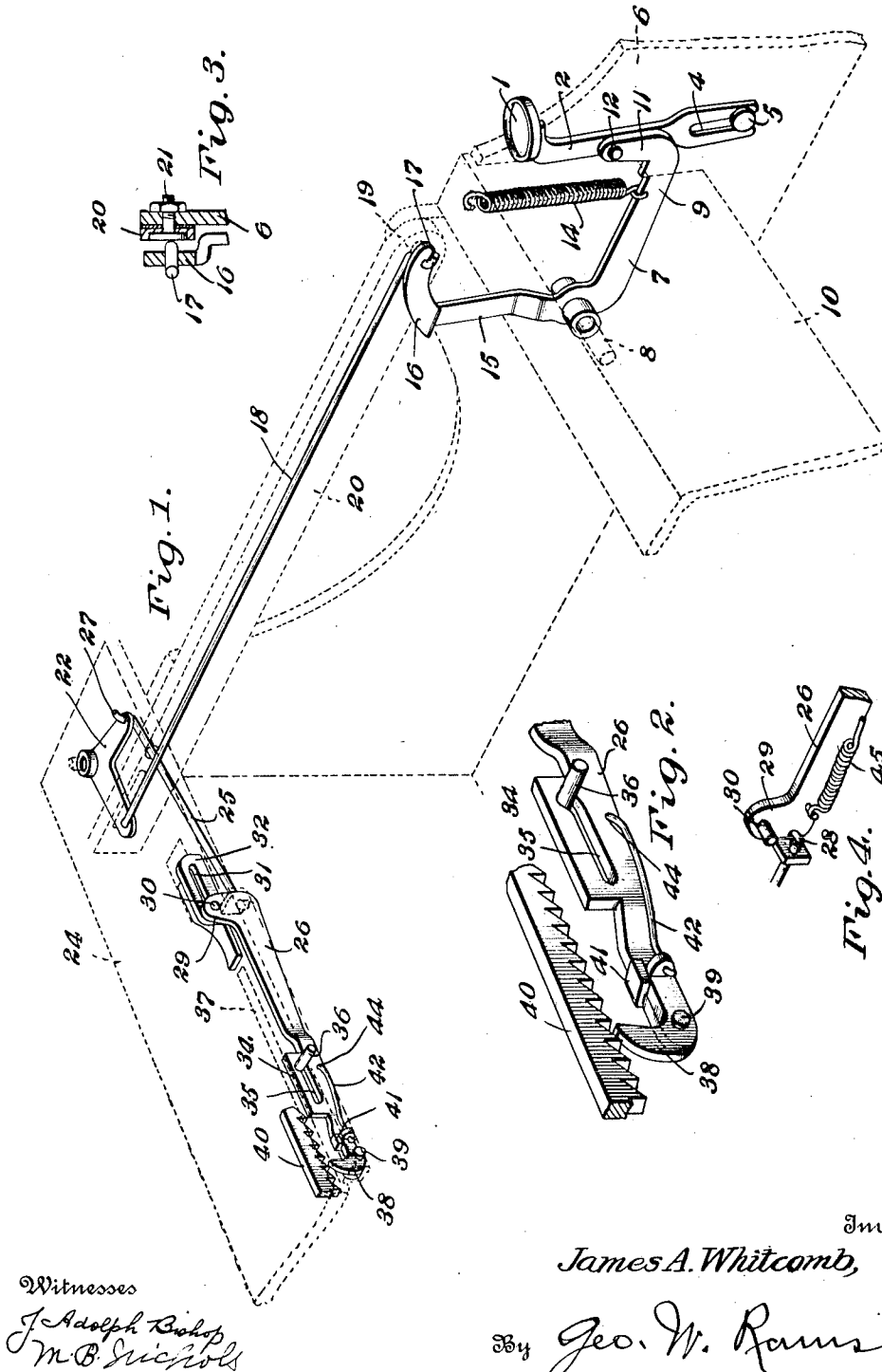


J. A. WHITCOMB.
TYPE WRITER.
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Witnesses
J. Adolph Bishop
M. B. Nichols

Inventor
James A. Whitcomb,

By Geo. W. Ramsey,
Attorney

UNITED STATES PATENT OFFICE.

JAMES A. WHITCOMB, OF McALESTER, OKLAHOMA.

TYPE-WRITER.

1,035,928.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES A. WHITCOMB, a citizen of the United States, and a resident of the city of McAlester, in the county of
5 Pittsburg, State of Oklahoma, have invented certain new and useful Improvements in Type-Writers, of which the following is a specification.

This invention relates broadly to type-
10 writing machines and specifically to back spacing mechanism whereby the carriage may be moved one space at a time in a direction opposite to the ordinary letter feeding.

The principal object of my invention is
15 to provide a back spacing mechanism particularly adapted to a typewriting machine of the folding type, wherein the carriage bed mechanism is pivoted to turn about a pivotal mount upon the machine frame.

Another object of my invention is to provide a back spacing mechanism wherein the
20 back space key is located at the upper right hand corner of the key board in front of the front board of a typewriting machine
25 of the folding type, and connecting links which translate a vertical movement of the key into a horizontal movement of a back spacing dog which is adapted to engage the carriage rack.

A still further object of the invention is
30 to provide a key operated back spacing mechanism particularly adapted to a typewriting machine of the folding type, wherein one pivotal connection of the back spacing
35 mechanism is arranged to lie in the axis about which a portion of the machine is adapted to be folded.

A still further object of the invention is
40 to provide a back spacing mechanism wherein the back spacing dog carrier may have a movement independent of the back spacing key, and connecting links from the key to the dog carrier.

A still further object of the invention is
45 to provide a back spacing mechanism adapted particularly to a typewriting machine of the folding type, wherein the carriage is adapted to be folded over other portions of the machine, the construction of the
50 back spacing mechanism comprising a key definitely positioned in the proximity of the key board, and connecting links between the key and the back spacing dog carried upon the foldable carriage and arranged
55 in such manner that the connections from the key to the back spacing dog are not

broken at any time when the carriage is in normal or abnormal position.

Other objects of the invention will in part
be obvious and in part pointed out in the
description of structure which follows here-
inafter, wherein the invention will be more
specifically described by reference to the ac-
companying drawing which form a part
of this application, and the scope of the in-
vention will be indicated by the appended
claims.

In the drawings like numerals represent
like parts throughout the several figures.

Figure 1 is a perspective showing the
general construction of a typewriting ma-
chine in dotted lines and showing my in-
vention in full lines. Fig. 2 is a perspective
of the back spacing dog, showing its rela-
tionship to the feeding rack. Fig. 3 is a
detail perspective showing the relation of
the pivot or hinge of a folding typewriter
in its relation to the pivotal point between
the key mechanism and the back spacing
mechanism. Fig. 4 is a detail view of a
part of the feeding dog showing a connec-
tion which allows independent movement
of the feed dog carrier in its relation to the
operating key.

In a typewriting machine it frequently is
desirable to move the carriage back one
space in the direction opposite to that in
which the carriage is normally moved under
the influence of the carriage feeding drum.
It is particularly desirable to be able to
move the carriage backward in a step-by-
step motion, where the typewriting machine
is not provided with tabulating mechanism
and where the operator depends either upon
the space key or upon the well known feed-
ing release key, to position the carriage with
reference to any particular desired tabu-
lated work. Back spacers that are operated
through keys located in the vicinity of the
key board, are well known in the general
typewriter art. However, there appears to
be no typewriting machine of the folding
type wherein the carriage is folded with re-
lation to the frame work of the machine,
that is provided with a back spacing key
located in or near the proximity of the key
board and arranged to operate a back spac-
ing dog which coöperates with the feeding
rack to move the carriage in a direction op-
posite to the normal letter spacing. Appli-
cant has constructed a mechanism which is
at all times in complete relation, by that

meaning that no parts are disconnected, when the carriage is folded or when the carriage is in normal position, and has provided a structure with a key definitely located in the machine frame on a part which is not moved when the carriage is folded.

Referring more particularly to the drawings, a key cap 1 is mounted upon a key stem 2, which is bifurcated to form a slot 4, that is constructed to have sliding engagement with a stud pin 5 fixedly mounted in the machine side frame 6. A bell crank 7 is mounted upon a transverse rod 8, that is adapted to carry one set of keys of the key board, (not shown in the drawings) and the bell crank 7 is provided with a forwardly extending arm 9 which projects through an opening in the front board 10, and is pivotally mounted at 11, by means of a rivet 12, to the key stem 2. A coiled spring 14 is attached to the front board 11 and to the forwardly extending arm 9 of the bell crank 7. An upwardly extending arm 15 of the bell crank 7 is bent forward into a curved portion 16 in such manner that a pivotal point 17, where the curved portion 16 is attached to a rearwardly extending link 18, lies co-incident with the axis of the pivotal point 19, wherein a carriage supporting bar 20 is adapted to pivot about a screw bolt 21 in the machine side frame 6. The link 18 is adapted to extend rearwardly in a relationship substantially parallel to the pivoted carriage supporting bar 20, and at its rear end is connected with one arm of a small bell crank 22, that is pivotally mounted upon the under side of the carriage bed 24. A short link 25 is connected with the other arm of the bell crank 22 and a dog carrying frame 26. The short link 25 is constructed with a hook 27 upon the end which coöperates with the bell crank 22, and is provided with a swaged head 28 upon the end which is connected with the dog carrying frame 26. The connection between the dog carrying frame 26 and the short link 25 is a loose connection, so that the dog carrier may slide upon the link 25 in the direction of its length and away from the swaged head 28. The dog carrying frame 26 is provided with an upwardly extending portion 29, which carries a small pin 30 that is adapted to slide in a slot 31, formed in a block member 32, that is set in the carriage bed 24. The forward portion of the dog carrying frame 26, is also provided with a raised part 34, in which is formed a slot 35, that is adapted to coöperate with a pin 36, which is driven in through the carriage frame and passes across a slot 37, that is cut in the carriage bed 24. A back spacing dog 38, is mounted on the outer end of the dog carrying frame 26, by means of a rivet 39, and is formed in the shape of a bell crank, one end of which is constructed

to engage the teeth of a carriage feeding rack 40, and the other end of the bell crank dog is constructed to engage a stop 41, that is formed integral with the dog carrying frame 26. The stop engaging end of the dog member is also provided with an offset portion which forms a means of engagement for a wire spring 42, which is fixedly mounted in the dog carrying frame 26, at a point 44, in such manner that it exerts a force upon the dog to keep the stop 41 and the extended arm of the back spacing dog normally in constant engagement with the slot 31. The slot 31, which is formed in the block member 32, is a straight line slot so that when the pin 30 is moved throughout the length of the slot, the raised part 34, of the dog carrying frame 26, is given a parallel motion. The slot 35, which is formed in the forward raised portion of the dog carrying frame, is arranged in the nature of a cam in such manner that two portions of the slot meet to form an angle, one portion of the angle being substantially parallel in the plane of the carriage bed. The dog carrying frame 26 is normally drawn against the swaged head 28 of the short link 25 by means of a small coiled spring 45 that is attached to the dog carrying frame 26 and to the carriage bed 24. This forward movement of the dog carrying frame 26 causes the pin 36 normally to be in engagement with an angular portion of the slot walls in the raised part 34 of the dog carrying frame 26, as is shown in Fig. 2.

The operation of the back spacing device is as follows:—The key cap 1 is forced downwardly and the key stem 2 is guided by means of the slot 4 and the stud pin 5. The key stem in moving downwardly carries with it the forwardly extending arm of the bell crank 7, thus extending the coiled spring 14 and moving rearwardly the arm 15 of the bell crank 7, which gives substantially a longitudinal movement to the link 18, which by its connection with the bell crank 22, gives substantially a longitudinal movement to the short link 25. The swaged head of the short link 25, by engagement with the dog carrying frame 26, moves the dog carrying frame 26 rearwardly. The pin 30 is drawn rearward in the slot and causes the rear portion of the dog carrying frame 26 to move in a plane substantially parallel with the carriage bed 24. As the dog carrying frame 26 moves rearwardly, the walls of the slot 37 ride over the pin 36 and cause the forward end of the dog carrying frame to take an upward and diagonal movement until the engaging face of the back spacing dog 38 is in contact with a tooth of the carriage rack. After the dog 38 is in engagement with the tooth of the carriage rack, the dog carrying frame moves substantially in a horizontal plane, for the

reason that the pin 36 has engaged the parallel portion of the slot 37, and the length of the slots 31 and 37 are such that the back spacing dog can move a distance sufficient to permit the feeding dogs in the feed mechanism (not shown) to escape one letter space.

As hereinbefore stated, since this application pertains specifically to a back spacing mechanism, the other well known parts of a typewriting machine have either been omitted entirely from the drawings or have been indicated by dotted lines. However, this invention is in the nature of a back spacing device particularly adapted to a typewriting machine of the folding type wherein the carriage bed and mechanisms carried thereupon, including feed mechanism, etc., are arranged to be folded to an abnormal position with reference to the keys or machine frame, in order that the machine may occupy less space for transportation, etc. The back spacing mechanism herein disclosed, is particularly adapted for the type of folding typewriter which is shown and described in the application of Charles H. Richardson, typewriting machines, Serial No. 545,502, filed Feb. 23, 1910.

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

1. In a typewriting machine, the combination of a carriage feeding rack, a dog carrier provided with an angular slot, a dog pivotally mounted upon said dog carrier, a pin adapted to cooperate with the walls of said slot, a carriage bed, a bell crank lever mounted upon said carriage bed, a link connecting said dog carrier and said bell crank lever, a machine frame, a compound key lever mounted in said machine frame, said compound key lever comprising a bell crank, a key stem pivotally attached to one arm of said bell crank, means for guiding a key stem in substantially a vertical direction, and a link extending from said compound key lever to said bell crank.

2. In a typewriting machine, the combination of a carriage feeding rack, a carriage bed, a dog carrier mounted for endwise movement in a slot in said carriage bed, a dog carried by said dog carrier, a bell crank mounted upon said carriage bed, a link connecting said bell crank and said dog carrier in such manner that said dog carrier may have a movement independent of said link, mounted for vertical movement pivotally attached to said bell crank, and operative means connecting the bell crank mounted in the machine frame and the bell crank mounted upon the carriage bed.

3. In a typewriting machine, the combination of a carriage feeding rack, a carriage bed, a dog carrier mounted for reciprocal motion in said carriage bed, said dog carrier

being provided with an angular slot, a dog mounted upon said dog carrier, a bell crank, a link connecting said bell crank and said dog carrier in such manner as to permit said dog carrier to have a movement independent of said link, a compound key lever comprising a bell crank, a key stem pivotally mounted upon one arm of said bell crank, means for guiding said key stem in substantially a vertical movement, and operative means connecting said compound key lever with said first mentioned bell crank.

4. In a typewriting machine, the combination of a machine frame, carriage feeding rack, a carriage bed pivotally mounted to swing on the machine frame, a dog carrier mounted for reciprocal motion in said carriage bed, a dog upon said dog carrier, means for causing said dog to engage said carriage rack when said dog carrier is moved longitudinally, a bell crank, a link operatively connecting said bell crank and said dog carrier in such manner as to permit said dog carrier to have a movement independent of said link, a compound key lever mounted in the machine frame, and operative means connecting said compound key lever and said bell crank.

5. In a typewriting machine, the combination of a machine frame, carriage feeding rack, a carriage bed pivotally mounted to swing on the machine frame, a dog carrier mounted for reciprocal movement on said carriage bed, a dog mounted upon said dog carrier, means for causing said dog to engage said carriage feeding rack when said dog carrier is moved in a direction opposite to that which the carriage rack travels under the influence of the carriage moving power, a key mechanism mounted in the machine frame, and means connecting said key mechanism with said dog carrier in such manner that said dog carrier is capable of movement independently of said connecting means, substantially as described.

6. In a typewriting machine, the combination of a machine frame, carriage feeding rack, a carriage bed pivotally mounted to swing on the machine frame, a dog carrier mounted on said carriage bed in such manner as to have reciprocal motion thereon in a direction substantially parallel with the length of the carriage bed, a dog mounted on said dog carrier, means for causing said dog to engage said carriage feeding rack when said dog carrier is moved in a direction opposite to the movement of the carriage feeding rack when said carriage feeding rack is moving under the influence of the carriage propelling power, a compound key lever mounted in the front portion of said machine frame, and means operatively connecting said compound key lever and said dog carrying frame.

7. In a typewriting machine, the combina-

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tion of a machine frame, carriage feeding rack, a carriage bed pivotally mounted to swing on said machine frame, a dog carrier, a dog mounted upon said dog carrier, a compound key lever mounted on said machine frame in the front portion thereof, a key cap operatively connected with said compound key lever in such manner as to have a substantially vertical movement, and operative means connecting said compound key lever with said dog carrying frame in such manner that said carriage feeding rack is retracted against the carriage propelling power when said key cap is depressed.

8. In a typewriting machine, the combination of a machine frame, a carriage bed pivotally mounted to swing on said machine frame, carriage feeding rack, a dog carrier, a dog mounted upon said dog carrier, said dog carrier being provided with an angular slot, means cooperating with said slot in such manner as to cause the dog to become operative to retract the carriage feeding rack against the carriage propelling power when the dog carrier is operated, a finger key mounted in said machine frame near the front thereof, and operative means connecting said finger key with said dog carrier.

9. In a typewriting machine, the combination of a machine frame, a carriage bed pivotally mounted to swing on said machine frame, carriage feeding rack, a dog carrier, a dog mounted upon said dog carrier, said dog carrier being provided with a slot, means cooperating with the walls of said slot for causing the dog upon said dog carrier to become operative when the dog carrier is moved in a direction substantially opposite to the movement of the carriage feeding rack when said rack is moving under the influence of the carriage propelling power, a finger key mounted for substantially vertical movement in said machine frame, and means operatively connecting said finger key and said dog carrier in such manner that said dog is movable independently of said connecting means.

10. In a typewriting machine, the combination of a carriage feeding rack, a dog carrier, a stop upon said dog carrier, a dog pivotally mounted upon said dog carrier, a portion of said dog being normally in engagement with said stop, a finger key, and means operatively connecting said finger key with said dog carrier, the construction and arrangement of parts being such that said dog carrier may have movement independent of said finger key.

11. In a typewriting machine of the folding type, the combination of a machine frame, a carriage bed, a supporting bar for said carriage bed pivotally attached to said machine frame, a finger key mounted in said machine frame, a back spacing dog operatively mounted in said carriage bed, jointed

operative means connecting said finger key and said back spacing dog, the axis of one joint in said jointed connections being substantially co-incident with the axis about which the carriage bed is adapted to be moved to abnormal position when the machine is folded.

12. In a typewriting machine of the folding type, the combination of a machine frame, a carriage bed, carriage bed supporting bars pivotally attached to said machine frame, a carriage feeding rack, a back spacing dog, means for carrying said back spacing dog, a key mounted in said machine frame and adapted to have substantially vertical movement, jointed connecting mechanisms operatively connecting said key with said back spacing dog, the axis of one joint of said jointed mechanisms being substantially co-incident with the axis about which said carriage is folded, substantially as described.

13. In a typewriting machine of the folding type, the combination of a machine frame, a carriage bed, a carriage bed supporting bar pivotally mounted on said machine frame, a carriage feeding rack, a dog carrier mounted for movement in said carriage bed, a dog mounted upon said dog carrier, a bell crank mounted upon said carriage bed, link mechanism operatively connecting said dog carrier with said bell crank in such manner that said dog carrier is moved independently of said connecting link, a finger key operatively mounted in said machine frame, and jointed mechanisms operatively connecting said finger key with said bell crank, the axis of one joint in said mechanisms lying substantially co-incident with the axis about which the carriage bed is folded to abnormal position, substantially as described.

14. In a typewriting machine of the folding type, the combination of a machine frame, a carriage bed, pivotal means for permitting said carriage bed to be folded to abnormal position, a carriage feeding rack, a dog carrier, a dog on said dog carrier, a finger key operatively mounted in said machine frame, jointed mechanisms operatively connecting said finger key with said dog carrier, the pivotal axis of one joint in said jointed mechanisms being substantially co-incident with the axis about which the carriage bed is folded to abnormal position.

15. In a typewriting machine of the folding type, the combination of a machine frame, a carriage bed, a carriage feeding rack, a dog carrier, a dog pivotally mounted on said dog carrier, means for causing said dog to become operative to move said carriage feeding rack in a direction opposite to its movement under the influence of the carriage propelling power, a finger key operatively mounted in said machine frame, joint-

ed mechanisms operatively connecting said finger key with said dog carrier, the axis of one joint in said pointed mechanisms being substantially co-incident with the axis about which said carriage bed is folded to abnormal position.

16. In a typewriting machine of the foldable type wherein the carriage bed is adapted to be moved to abnormal position, the combination of a machine frame, a carriage bed, a back spacing dog mounted on said carriage bed, a finger key mounted for substantially vertical movement in said machine frame, and operative means connecting said finger key with said back spacing dog.

17. In a typewriting machine of the foldable type wherein the carriage bed is adapted to be moved to an abnormal position, the combination of a back spacing dog, a dog carrier, means for causing said back spacing dog to become operative when said dog car-

rier is moved, pivotal means about which said carriage is moved to abnormal position, a finger key mounted in said machine frame, and means for operatively connecting said finger key with said dog carrier at all times.

18. In a typewriting machine of the foldable type wherein the carriage bed is adapted to be moved from normal to abnormal position, the combination of a machine frame, a carriage bed, means for permitting said carriage bed to be moved to abnormal position, a dog carrier, a back spacing dog on said dog carrier, a key operatively mounted in said machine frame, and means operatively connecting said finger key with said dog carrier.

JAMES A. WHITCOMB.

Witnesses:

E. E. ST. GERMAIN,

A. V. MURDOCH.