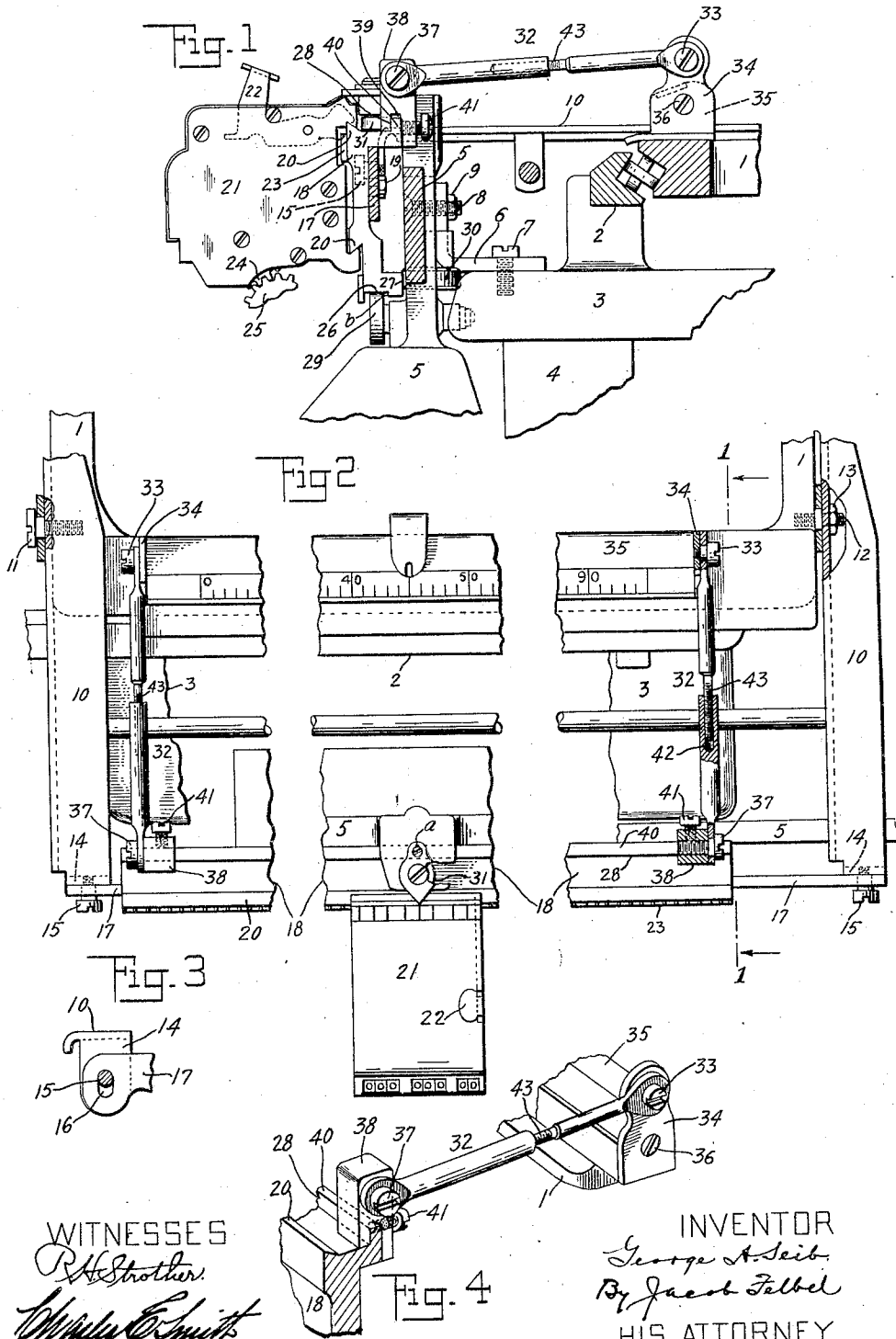


G. A. SEIB.
 CALCULATING MACHINE.
 APPLICATION FILED JUNE 11, 1921.

1,423,741.

Patented July 25, 1922.



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CALCULATING MACHINE.

1,423,741.

Specification of Letters Patent. Patented July 25, 1922.

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To all whom it may concern:

Be it known that I, GEORGE A. SEIB, citizen of the United States, and resident of Ilion, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Calculating Machines, of which the following is a specification.

My invention relates to calculating machines and is shown embodied in the present instance in a combined typewriting and calculating machine of the character known on the market as the Remington-Wahl machine, and one style of which is shown, for example, in the patent to John C. Wahl, No. 1,270,471, dated June 25, 1918, although it should be understood that the invention is not restricted to its embodiment in such machines.

In the Remington-Wahl machine, the vertical totalizer carrying truck is connected to the typewriter carriage to travel with the latter, the character of the connections between the carriage and truck being such that a slight movement of limited extent of the truck relatively to the carriage and transversely of the line of travel of the truck is permitted in order to automatically take care of or compensate for any lack of absolute straightness in the truck itself or other inaccuracies of manufacture. It sometimes occurs that certain difficulties which will hereinafter appear are encountered by reason of this relative movement of the truck in certain directions.

One of the main objects of my invention is to overcome these difficulties heretofore encountered and to provide means for controlling, or to aid in controlling, this relative movement of the truck.

A further object of my invention is to provide simple, strong and effective means of the character specified which may be readily applied to a Remington-Wahl machine without modifying, or materially modifying, the structural features of said machine as they now exist.

To the above and other ends which will hereinafter appear, my invention consists in the features of construction, arrangements of parts, and combinations of devices set forth in the following specification and particularly pointed out in the appended claims.

In the accompanying drawings wherein

like reference characters indicate corresponding parts in the different views,

Fig. 1 is a fragmentary, vertical, fore-and-aft sectional view showing a portion of a Remington-Wahl machine embodying my invention, the section being taken on the line 1—1 in Fig. 2 and looking in the direction of the arrows at said line.

Fig. 2 is a fragmentary top plan view of the same with parts in section and parts omitted.

Fig. 3 is a detail fragmentary front view partly in section showing the usual connections between the truck and the carriage at one end of the latter.

Fig. 4 is a detail, fragmentary, perspective view partly in section and showing one of my improved link connections between the truck and the typewriter carriage.

In the drawings I have shown only so much of a Remington-Wahl machine as may be necessary to arrive at an understanding of my invention in its embodiment therein.

Said machine comprises a typewriter of which there is shown in the drawing little except a portion of the carriage 1, its forward fixed guide rail 2, the top plate 3 and a front corner post 4. The carriage is mounted in the usual manner to travel over the top plate from side to side of the machine and is supported by the fixed guide rails. The actuator for the computer has its stationary framework 5 supported from the frame of the typewriting machine by angle brackets 6 secured to the top plate 3 by screws 7; screw bolts 8 and nuts 9 connecting the angle brackets to the actuator frame. Sheet metal arms or brackets 10 are rigidly secured in the usual manner to the carriage 1 and project forward therefrom. The shouldered screw 11 and the shouldered screw stud 12 and nut 13 constitute part of the usual means by which the brackets are secured to the carriage. The forward end part of each bracket 10 is formed with a depending ear 14, in a tapped opening in which is received the threaded end of a headed shouldered screw 15, that passes through a vertically disposed slot 16 in a bracket arm 17 that is secured to and in effect constitutes part of a totalizer truck 18. From an inspection of Fig. 2 it will be seen that the distance between the front face of each ear 14 and the head of the associate screw 15 is greater than the thickness of the bracket arm 17 to permit

a slight fore-and-aft movement of the said arm 17 and of that end of the totalizer truck connected therewith. The pin and slot connection 15—16 between the carriage and truck also permits the latter to receive a limited up and down movement of slight extent relatively to the carriage, but prevents any movement of the truck relatively to the carriage in the direction of the travel of the latter and, therefore, compels the carriage and truck to move accurately together in the direction of the feed or travel of the carriage. The purpose of the looseness in the connections between the carriage and computer or totalizer truck will hereinafter more clearly appear. The truck also comprises a casting 18 secured by nuts 19 and bolts to the bracket arms 17. The casting is formed with a dove-tail cross section, indicated at 20, to fit corresponding openings in the side plates of each totalizer 21, and the totalizers are thus supported on the truck. Each totalizer is held in its adjusted position along the truck by a hand-released detent or catch 22 which has a tooth that engages between teeth on the upper edge of a rack bar 23 carried by and extending longitudinally of the truck. Any desired number of detachable totalizers may be carried by the truck and each contains computing mechanism including a series of gear wheels 24 which are adapted to mesh, one at a time, with a master wheel 25. This master wheel is carried by the fixed actuator frame 5 and constitutes part of the computer actuating mechanism driven by the numeral keys of the typewriter.

As the typewriter carriage moves toward the left in the operation of writing and computing a number, the wheels 24 move one after another into mesh with the master wheel 25. Said gears 24, and the totalizers in which they are supported, must of necessity be guided across said master wheel with a considerable degree of precision, as otherwise the teeth of the wheels 24 might collide with the teeth of the master wheel and if the wheels 24 and 25 do not mesh properly the operation may be hard or otherwise imperfect. In the Remington-Wahl machine, as heretofore constructed, the totalizer truck has been loosely connected with the arms 10 by means of the pin and slot connections 15—16 in the manner hereinbefore described. The truck by reason of this connection has a small limited amount of freedom of movement at its ends both up and down and also front and back with respect to the ends of the brackets 10. The accurate guiding of the truck is effected at the middle of the machine substantially in the front to rear vertical plane of the master wheel 25, this being the point at which accuracy is required. To this end the truck has been given a cross section like that indicated in Fig. 1 so as to

provide three trackways 26, 27 and 28. The trackway 26 is at the bottom of the truck and faces downward and is supported by a roller or wheel 29 which carries the vertical weight of the truck, and of the totalizers mounted on it. The trackway 27 is at the bottom of the truck and faces rearward and presses against a roller or wheel 30. The trackway 28 is at the top of the truck and presses forward against a roller 31 somewhat similarly to the rollers 29 and 30; all these rollers 29, 30 and 31 being carried by the fixed actuator frame 5 in the fore-and-aft vertical plane of the master wheel. In practice, the bearing for each of said rollers is so constructed as to afford a fine adjustment of the roller transverse to its axis, so that, in manufacturing the machine, the truck can be adjusted to cause the gears 24 to mesh accurately with the master wheel 25.

In addition to the rollers 29, 30 and 31, the Remington-Wahl machine includes an adjustable stop coacting with the truck to limit its upward displacement in the plane of the master wheel. Said machine also includes an adjustable stop coacting with the truck in the same plane to limit the rearward displacement of the upper part of the truck. These stops are not shown in the accompanying drawings except in so far as the stop for limiting the upward movement of the truck is indicated at *a* in Fig. 2, but said stops are illustrated in the hereinbefore mentioned Wahl patent. The shoulder *b* at the rear edge of the track 26 coacts with the side of the roller 29 to limit the forward displacement of the truck at the lower end thereof. The said stops and rollers are all carried by the fixed actuator frame 5 and located in the plane of the master wheel. The rollers 29, 30 and 31 supply a means for guiding accurately that portion of the truck which at any given moment is passing the master wheel and insure a proper intermeshing of any individual totalizer wheel which is for the moment brought, or is about to be brought, into co-operative relation with the master wheel.

It will be observed that the center of gravity of the truck is a little forward of the roller 29 by which the weight of said truck is supported, and this is especially so when several totalizers are mounted and project forward therefrom, so that there is a constant pressure due to the weight of the parts backward on the lower back roller 30 and forward on the upper front roller 31. In some instances a number of totalizers are mounted on the truck and the overhanging weight then becomes considerable, and it has been found that sometimes the upper front roller 31 co-operating with the trackway 28 fails to turn. Said trackway, sliding against the roller 31, gradually causes wear, the roller sometimes being worn flat so that it has

to be replaced with a new one. The coating face of the track 28 also becomes unduly and unevenly worn or "pitted", and the wear on this roller and track allows the upper part of the truck to swing forward and destroy the nice adjustment and relation between the totalizer wheels 24 and the master wheel 25.

The immediate object of my present invention is to overcome this difficulty without detracting from the loose connection between the carriage and truck which enables the latter to move up and down at either end relatively to the carriage and to attain any advantages derived from such movement.

To these ends I employ in the present instance two substantially horizontally disposed non-elastic restraining members or links 32 which extend fore-and-aft of the machine, one near each end of the truck and each connected at its front end to the upper part of the truck and at its rear end to the typewriter carriage. Each link 32 is pivoted at its rear end on a shouldered pivot screw 33 threaded into a tapped opening in a plate 34. The plates 34 are substituted for the shorter plates usually provided on the ends of the scale-supporting member 35 on the typewriter carriage, and which plates are secured thereto by screws 36; these same screws being utilized in the present instance to secure the plates 34 in place. The forward end of each link 32 is connected by a shouldered pivot screw 37 to a bracket or block 38 detachably connected with the truck. In the present instance the lower end portion of each bracket 38 is bifurcated at 39 to straddle and fit on an upwardly projecting flange 40 of the truck and on which the forwardly facing track 28 is formed. The rear depending arm formed by the bifurcation in each block or bracket 38 is tapped to receive a set screw 41, the forward end of which bears against the flange 40 and firmly secures the bracket to the truck.

Adjustable means are provided for each link, and in practice these links are so adjusted that the track 28 barely touches the roller 31. In the present instance this is accomplished by making each link a two-part link, one part being formed with an internally threaded socket 42, to receive an externally threaded end portion 43 of the other part. When either end of a link is detached the part at the detached end may be turned on its companion member to effect a lengthening or shortening of the link. In practice I prefer to adjust the links 32 so that the track 28 barely touches the roller 31 and thus restrains the truck against forward movement at the upper end thereof. This results in relieving the roller 31 and track 28 of the weight ordinarily placed thereon

and accordingly reduces the wear on said parts. The tendency of the upper end of the truck to move forward by the weight of the overhanging totalizers carried thereby is exerted longitudinally of the independently pivoted non-yielding links 32 and against the pivots 33 by which they are anchored to the typewriter carriage. It will be seen that while the links 32 restrain the truck against forward movement at its upper end, so as to relieve the track 28 and the roller 31 from receiving the full force of the forwardly directed thrust of the loaded truck, said links do not interfere with the freedom of the truck to move up and down at either end thereof, and thus regulate itself automatically.

It will be observed that the construction is such that the links 32 may be readily applied to different forms of Remington-Wahl machines now on the market without modifying, or materially modifying, the structural features of said machines as they now exist, the only actual change required in such machines being the substitution of the plates 34 for those usually employed.

When I refer herein to the members 32 as "links" I employ said term in its ordinary meaning to indicate non-elastic members of the general character shown.

Various changes may be made without departing from my invention.

What I claim as new and desire to secure by Letters Patent, is—

1. In a computing machine, the combination of a carriage, a totalizer truck, means for connecting the truck to move with the carriage but enabling the truck to have a limited movement relatively to the carriage transversely of the line of travel of the truck, bearing rollers which guide the truck, and non-elastic links intermediate said carriage and truck.

2. In a computing machine, the combination of a carriage, a totalizer truck, means for connecting the truck to move with the carriage but enabling the truck to have a limited movement relatively to the carriage transversely of the line of travel of the truck, bearing rollers which guide the truck, and two links which extend fore and aft of the machine, each link being pivoted at its front end to the truck and at its rear end to the carriage.

3. In a computing machine, the combination of a carriage, a totalizer truck, means for connecting the truck to move with the carriage but enabling the truck to have a limited movement relatively to the carriage transversely of the line of travel of the truck, bearing rollers which guide the truck, links intermediate said carriage and truck, and adjusting means for said non-elastic links.

4. In a computing machine, the combina-

tion of a carriage, a totalizer truck, means for connecting the truck to move with the carriage but enabling the truck to have a limited movement relatively to the carriage transversely of the line of travel of the truck, bearing rollers which guide the truck, and a plurality of two-part links connecting the truck and carriage, the parts of each link being united by an adjustable connection whereby the length of each link may be varied at will.

5. In a computing machine, the combination of a carriage, a totalizer truck, means for connecting the truck to move with the carriage but enabling the truck to have a limited movement relatively to the carriage transversely of the line of travel of the truck, bearing rollers which guide the truck, and two non-elastic restraining members, connecting the carriage and truck and pivoted to each of them, said members permitting a movement of the truck relatively to the carriage in one direction but restraining such a relative movement of the truck in another direction.

6. In a computing machine, the combination of a carriage, a totalizer truck, means for connecting the truck to move with the carriage but enabling the truck to have a limited movement relatively to the carriage transversely of the line of travel of the truck, bearing rollers which guide the truck, and two non-elastic restraining members which extend fore and aft of the machine and each of which is pivoted independently of the other at its forward end to the upper portion of the truck, each link being pivoted independently of the other at its rear end on the carriage, whereby the truck may receive an up and down movement relatively to the carriage without interference from said links but is positively restrained by the latter from a forward relative movement.

7. In a computing machine, the combination of a carriage, a totalizer truck, means for connecting the truck to move with the carriage but enabling the truck to have a limited movement relatively to the carriage transversely of the line of travel of the truck, bearing rollers which guide the truck, and two restraining members which connect the truck and carriage and which are pivoted to both, each member being non-yielding lengthwise or intermediate its points of pivotal connection, thereby restraining a movement of the truck relatively to the carriage in one direction but permitting a relative movement of the truck in another direction by reason of the pivotal movement of said members.

8. In a computing machine, the combination of a carriage, a totalizer truck, a total-

izer carried thereby, a master wheel for said totalizer, bearing rollers for guiding said truck, and means for connecting the carriage and truck to travel together and for permitting a movement of the latter relatively to the carriage in one direction and for positively restraining it against movement in another direction, said means comprising pivoted links connecting the carriage and truck.

9. In a computing machine, the combination of a carriage, a totalizer truck, a totalizer carried thereby, a master wheel for said totalizer, bearing rollers for guiding said truck, means for connecting the carriage and truck to travel together and for permitting a movement of the latter relatively to the carriage in one direction and for positively restraining it against movement in another direction, said means comprising pivoted links connecting the carriage and truck, and adjusting means for said links.

10. In a computing machine, the combination of a carriage, a totalizer truck, a totalizer carried thereby, a master wheel for said totalizer, bearing rollers for guiding said truck, and means for connecting the carriage and truck to travel together and for permitting a movement of the latter relatively to the carriage in one direction and for positively restraining it against movement in another direction, said means comprising a pair of parallel substantially horizontally disposed links which extend fore and aft of the machine and connect the carriage and truck, each link being pivoted at its forward end to the upper portion of the truck and at its rear end to the carriage.

11. In a computing machine, the combination of a carriage, a totalizer truck, a totalizer carried thereby, a master wheel for said totalizer, bearing rollers for guiding said truck, and means for connecting the carriage and truck to travel together and for permitting a movement of the latter relatively to the carriage in one direction and for positively restraining it against movement in another direction, said means comprising a pair of parallel substantially horizontally disposed links which extend fore and aft of the machine and are pivoted to and connect the carriage and truck, each link being a two-part link, and a threaded connection between the parts of each link so that it may be lengthened or shortened at will.

Signed at Ilion, in the county of Herkimer and State of New York, this 9th day of June, A. D. 1921.

GEORGE A. SEIB.

Witnesses:

LINNIE F. BURNETT,
W. H. MACMILLAN.