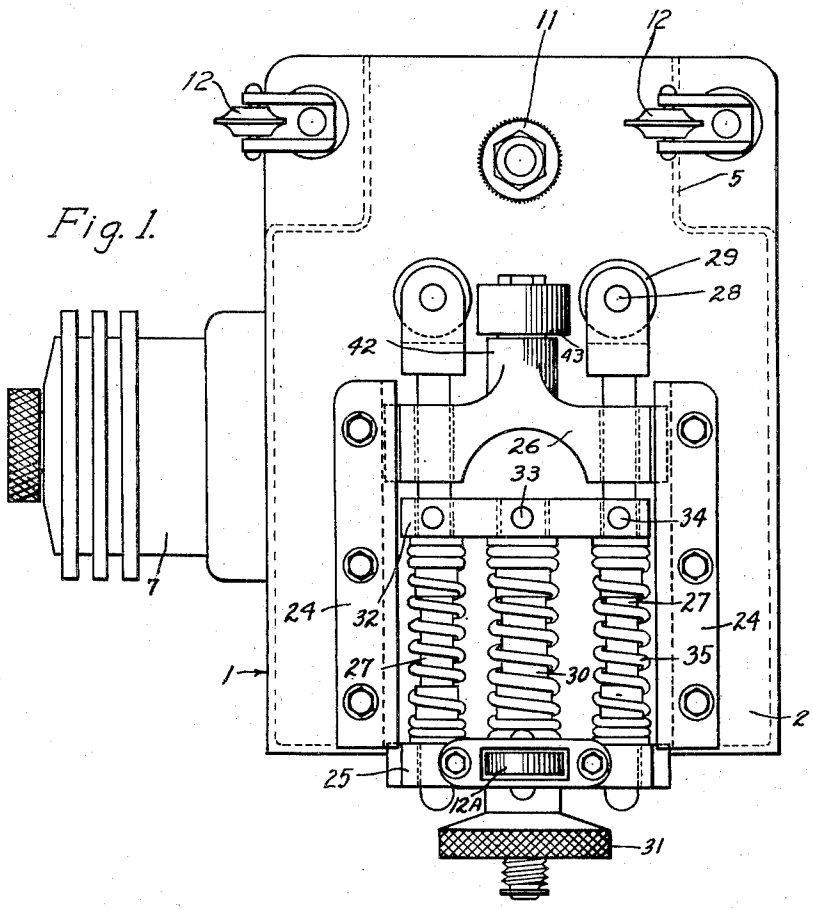
Feb. 20, 1951 L. TROMBETTA 2,542,846

SELF-PROPELLED CARRIAGE

Filed March 17, 1945 2 Sheets-Sheet 1

Fig. 1.



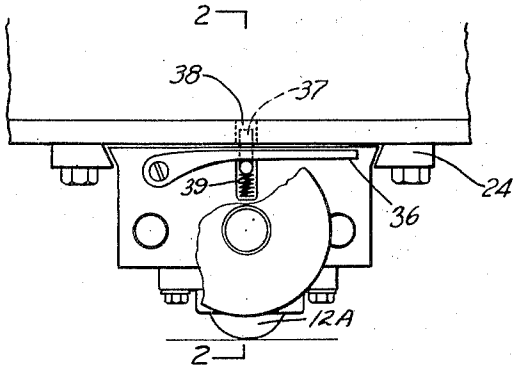
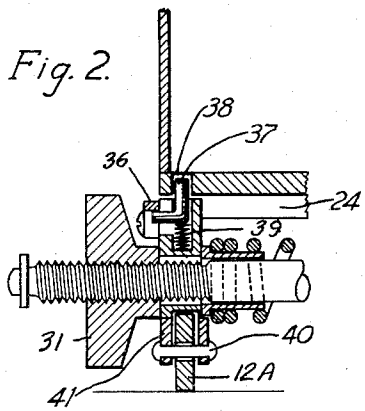


Fig. 3.

Fig. 2.



Louis Trombetta
INVENTOR.

BY William Wolfe
ATTORNEY.

Feb. 20, 1951 L. TROMBETTA 2,542,846

SELF-PROPELLED CARRIAGE

Filed March 17, 1945 2 Sheets-Sheet 2

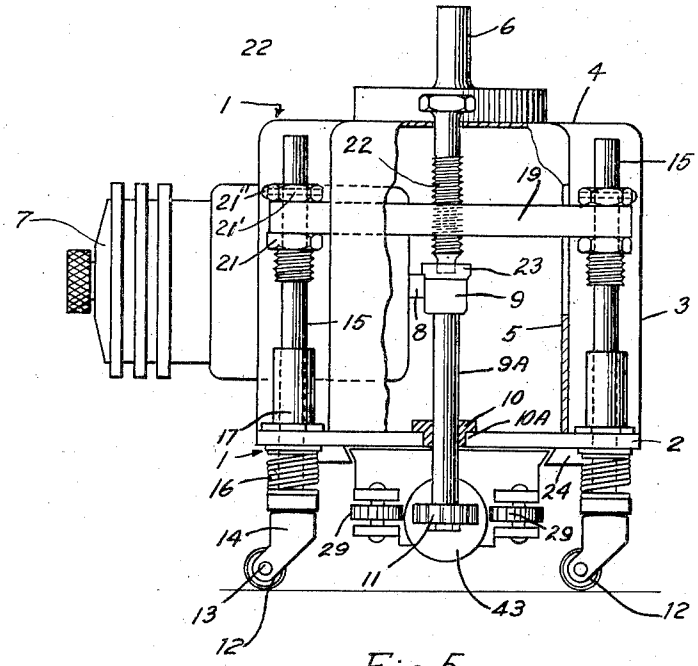


Fig. 5.

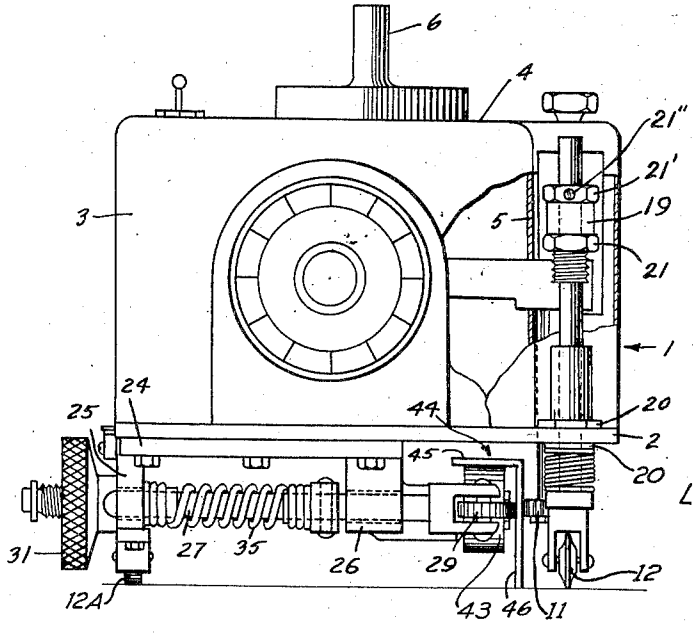


Fig. 4.

Louis Trombetta
INVENTOR.

BY William Wolfe
ATTORNEY.

Patented Feb. 20, 1951

2,542,846

UNITED STATES PATENT OFFICE

2,542,846

SELF-PROPELLED CARRIAGE

Louis Trombetta, New York, N. Y.

Application March 17, 1945, Serial No. 583,296

7 Claims. (Cl. 104—245)

1

My invention relates to self propelled carriages capable of moving about a templet while guiding, supporting and holding burning, sawing, welding, grinding or tracing machines or the like.

As all free travelling carriages, heretofore made for use with templets, for holding and guiding burning or other elements have been able to operate only horizontally no attention has been paid to simplicity and size and as a result they are cumbersome, large, inefficient and are difficult to set up and cannot be easily transported.

It is an object of my invention to construct my carriage so that it can operate universally in any plane.

Another object is to construct a carriage which will follow the form of the templet to a high degree of accuracy.

A further object is to construct a carriage which can travel about a templet held vertically or at any desired angle.

An additional object is to construct a simple, light carriage which can be easily carried about, quickly set up and which will travel about the templet at a relatively high speed.

Other objects, features and advantages of the invention will be pointed out in the specifications and shown in the accompanying drawings.

I accomplish these and other objects by forming my carriage of a design suitable for use with an angled templet, one leg of the templet being welded or otherwise joined to the work at its edge and the second leg being offset and parallel to the work and providing the carriage with two bearing wheels at one end of the carriage and a pivot bearing wheel at the other end of the carriage and supplying a removable under body to the carriage comprising two spring held pressure wheels capable of exerting pressure against the welded leg of the templet and a third pressure wheel capable of exerting pressure against the free leg of the templet and a power driven traction wheel on the carriage functioning under the spring pressure of the spring pressure wheels against the side of the welded leg of the templet opposite the two pressure wheels.

In the accompanying drawings Fig. 1 is an under view of my new carriage burner holder; Fig. 2 is a sectional detail at the control end along the line 2—2 of Fig. 3; Fig. 3 is an end view of the control end of the carriage with the control wheel partly broken away; Fig. 4 is a side view with the casing broken away and Fig. 5 is an end view with the casing broken away.

In the drawing and specification, like numerals indicate identical elements. My carrier or carriage 1 is formed with a framework comprised of a base 2, casing 3 extending about the base and upwardly and having a top 4 and offset side walls 5. The burner or other machine is held on top by a conventional burner holder 6 secured to the top in any suitable manner. If desired the burner holder could be secured to the side of the casing.

2

A motor 7 is secured to the casing and base and through its shaft 8, gears (not shown) enclosed in the gear box 9 and the vertical shaft 9A which extends downward through the sleeve 10 in the opening 10A in the base 2 rotates the knurled, toothed or serrated traction wheel 11 and supplies the motivating power to the carriage.

The carriage is supported at one end by two bearing wheels 12 located one near each side and at the other end by the carriage-pivoting wheel 12A located midway between the sides. The two wheels 12 are carried on axles 13 held by the forked bearings 14 which are pivotally secured to the lower ends of the rods 15. The rods 15 extend through the coiled springs 16, openings in the base lined with the sleeves 17 and upward through openings in the opposite ends of the cross bar 19. The coiled springs exert pressure against both the under face of the base and the bearings 14 and tend to lift the carriage. The nuts 20 above and below the base 2 on the sleeves hold them in position and the sleeves guide the rods 15. The upper ends of the rods below the ends of the cross bar 19 are threaded and carry the nuts 21 to partially transmit to the rods the control of the crossbar 19. Rods 15 also have nuts 21' secured to them, above the cross bar 19, by pins 21'' to further transmit to them the control of the cross bar 19. A tension screw 22 with its head above the top 4 extends through the casing and is screwed through the crossbar and held from vertical movement but with free rotation by the flange ring 23 secured to the gear box 9. This tension screw 22 controls the tension in the coiled springs and the elevation of the base of the carriage through its movement of the crossbar and rods 15.

Below and secured to the under face of the base 2 are the guides 24 which slideably carry the under carriage comprised of cross element 25 near the outer end of the guides and the inner cross element 26 near the inner end of the guides.

Rods 27 are positioned adacent to and extend through the ends of the cross elements and terminate at their inward extending ends in bearings 28 carrying pressure wheels 29 which together with the driving wheel 11 function in a plane at right angles to the stance of the machine. A center rod 30, threaded and carrying the nut 31

at its outer end, extends through the center of the cross element 25 and terminates at a cross bar 32 to which it is held by the pin 33. The cross bar 32, positioned between the cross elements 25 and 26, is provided with openings through which the rods 27 pass and to which it is pivotally held by the pins 34. Coiled springs 35 encircle the rods 27 and 30 and exert pressure against the cross element 25 and cross bar 32.

A locking means holding the cross element 25 in position against the pressure of the springs 35 is comprised of an arm 36 pivoted to the cross element, a locking pin 37 resting in an opening 38 in the base 2 and a spring 39 which normally holds the pin 37 in an engaged position in the opening.

The pivot bearing wheel 12A is carried by an axle 40 and bearing 41 formed in the under part of the cross element 25.

The inner cross element 26 is provided with the inward extending side arm 42 carrying the pressure wheel 43 which functions in a plane at right angles to the plane of the driving and pressure wheels 11 and 29 respectively.

The machine operates by following a templet formed of an angle iron 44 positioned with the free leg 45 parallel to and spaced from the work and with the edge of the other leg 46 tack welded or otherwise attached or held to the work and outlining the path of travel of the working element. The carriage is prepared and positioned for work in the following manner; (1) The base is set in position over the templet with the under carriage removed in such a manner that the periphery of the traction wheel butts or is in contact with the outside face of the welded leg 46 and the leg 45 extends toward the guideway, (2) the under carriage is then slid into the guideway until the pin 37 is caught in the hole of the base, (3) the nut 31 is then released permitting the springs 35 to force the pressure wheels 29 against the inside face of the welded leg, the force of the spring being transmitted in the other direction through the cross element 25, locking pin 37, base 2 and sleeve 10 to cause the traction wheel 11 to grip firmly the outside face of the same leg and the pressure wheel 43 to rest positioned under the leg 45 of the angle iron, (4) the head of the tension screw 22 is then turned, forcing the springs 16 to raise the base 2 and under carriage and cause the pressure wheel 43 to move into intimate contact with and exert pressure against the underside of the leg 45 of the angle iron, (5) now the motor is started which through its gears and shafts rotates the traction wheel which in turn revolves and travels pulling the carriage along the templet.

The fact that the rods 27 are only pivotally attached to the center pinned but otherwise free cross bar 32 and have considerable play about the pivots allows the pressure wheels 29 to act independently of each other which will permit the carriage to travel along a templet curved into an oval, archway circle or a sufficiently rounded corner joining to straight sides.

The machine can function upside down as in this position the pressure wheel 43 is above the free leg of the angle and supports the machine while bearing wheels 12 and 12A act as pressure wheels. The leg 46 of the template serves as a plate-like guiding strip for the carriage and the traction wheel 11 along with the pressure wheels 29 function as guide wheels cooperating with such guiding strip to guide the carriage and cause it to follow straight or curved portions of the template. The leg or flange 45 of the template

serves as a plate-like retaining strip with which the retaining wheel 43 cooperates to retain the carriage against the surface along which it travels when the carriage is functioning upside down or moving on a vertically disposed surface.

Although I have shown and described my carriage in its main form many variations are possible without departing from the spirit and scope of the ideas conveyed in the drawings and specification and so I desire to cover all modifications, forms and embodiments of my invention which may come within the scope and language of any and all of the claims.

I claim:

1. A template-guided self-propelled carriage adapted for use with a template having a plate-like guiding strip disposed substantially at right angles to the plane of the work over which the carriage is to be guided and a plate-like retaining strip disposed substantially parallel to the plane of the work, said carriage comprising a base, supporting wheels at one side of the base, a guideway on the base, an undercarriage slidably mounted in said guideway, a carriage-pivoting wheel carried by the undercarriage and located at the opposite side of the base from the first-mentioned supporting wheels, a traction wheel on the carriage and mounted to rotate in a plane substantially parallel to the plane of the work for engagement with one side of the guiding strip of the template, pressure wheels carried by the undercarriage mounted to rotate in a plane substantially parallel to the plane of the work for engagement with the other side of the guiding strip of the template, means for yieldingly urging said pressure wheels toward the traction wheel so that the traction wheel and pressure wheels can grip the guiding strip of the template between them, a motor on the carriage, power transmission means for driving the traction wheel from the motor, and a pressure wheel carried by the undercarriage and mounted to rotate in a plane at right angles to the plane of the work for engagement with the underside of the retaining strip of the template.

2. A template-guided self-propelled carriage adapted for use with a template having a plate-like guiding strip disposed substantially at right angles to the plane of the work over which the carriage is to be guided and a plate-like retaining strip disposed substantially parallel to the plane of the work, said carriage comprising a base, supporting wheels at one side of the base, a guideway on the base, an undercarriage slidably mounted in said guideway, a supporting wheel carried by the undercarriage and located at the opposite side of the base from the first-mentioned supporting wheels, a traction wheel on the carriage and mounted to rotate in a plane substantially parallel to the plane of the work for engagement with one side of the guiding strip of the template, pressure wheels carried by the undercarriage mounted to rotate in a plane substantially parallel to the plane of the work for engagement with the other side of the guiding strip of the template, means for yieldingly urging said pressure wheels toward the traction wheel so that the traction wheel and pressure wheels can grip the guiding strip of the template between them, a motor on the carriage, power transmission means for driving the traction wheel from the motor, a pressure wheel carried by the undercarriage and mounted to rotate in a plane at right angles to the plane of the work for engagement with the underside of the

retaining strip of the template, said first-mentioned supporting wheels being mounted so that they are movable a limited amount away from the base in a direction toward the work to an extended position, means for yieldingly urging said first-mentioned supporting wheels toward their extended position whereby the periphery of said last-mentioned pressure wheel is yieldingly urged into engagement with the underside of the retaining strip of the template, and means for locking said undercarriage in a position in said guideway in which all of the template-engaging wheels can engage the two strips of the template.

3. A template-guided self-propelled carriage adapted for use with a template having a plate-like guiding strip disposed substantially at right angles to the plane of the work over which the carriage is to be guided and a plate-like retaining strip disposed substantially parallel to the plane of the work, said carriage having a plurality of supporting wheels for supporting the carriage at least one of which acts as a pivot for the carriage, a guide wheel on the carriage mounted to rotate in a plane parallel to the plane of the work for engagement with one side of said guiding strip of the template, a pair of guide wheels on the carriage also mounted to rotate in a plane parallel to the plane of the work for engagement with the other side of the template guiding strip, means for yieldingly urging said pair of guide wheels toward the first-mentioned guide wheel so that the three guide wheels can grip the template guiding strip between them, a retaining wheel carried by the carriage and mounted to rotate in a plane at right angles to the plane of work for engagement with the underside of said retaining strip of the template, means for yieldingly urging said retaining wheel into engagement with the underside of the template retaining strip, one of the wheels on the carriage being a traction wheel, a motor carried by the carriage, and power transmitting means for driving the traction wheel from the motor.

4. A template-guided self-propelled carriage adapted for use with a template having a plate-like guiding strip disposed substantially at right angles to the plane of the work over which the carriage is to be guided and a plate-like retaining strip disposed substantially parallel to the plane of the work, said carriage having two sets of wheels, one set comprising a group of three guide wheels rotating in a plane parallel to the plane of the work for engagement of one of them with one side of the template guiding strip and engagement of the other two with the opposite side thereof, means for yieldingly urging said other two guide wheels toward the first guide wheel so that the three guide wheels can grip the template guiding strip between them, the other set of said wheels including a plurality of supporting wheels which support the carriage and also including a retaining wheel mounted to rotate in a plane at right angles to the plane of the work for engagement with the underside of the retaining strip of the template, means adapted when the carriage is supported on the work by the supporting wheels to yieldingly urge said retaining wheel into engagement with the underside of the template retaining strip, one of the wheels on the carriage being a traction wheel, a motor carried by the carriage, and power transmitting means for driving the traction wheel from the motor.

5. A template-guided self-propelled carriage

adapted for use with a template having a plate-like guiding strip disposed substantially at right angles to the plane of the work over which the carriage is to be guided and a plate-like retaining strip disposed substantially parallel to the plane of the work, said carriage having a plurality of wheels for supporting the carriage and a wheel mounted thereon to rotate in a plane substantially at right angles to the plane of the work for engagement with the underside of the retaining strip of the template, means for yieldingly urging said last-named wheel into engagement with the underside of the template retaining strip, other wheels on the carriage mounted to rotate in a plane substantially parallel to the plane of the work and at least one of them mounted for engagement with one side of the guiding strip of the template and the other mounted for engagement with the opposite side of the guiding strip of the template, means for yieldingly urging the wheel or wheels adapted to engage one side of the template guiding strip toward the wheel or wheels adapted to engage the opposite side thereof, at least one of the wheels on the carriage being a traction wheel, and power means on the carriage for driving the traction wheel.

6. The combination of a template-guided self-propelled carriage and an angle-iron template having a guiding leg disposed substantially at right angles to the plane of the work over which the carriage is to be guided and a flange disposed substantially parallel to the plane of the work, said carriage having a plurality of wheels for supporting the carriage and a wheel mounted thereon to rotate in a plane substantially at right angles to the plane of the work with its periphery engaging the underside of the flange of the template, other wheels on the carriage mounted to rotate in a plane substantially parallel to the plane of the work and at least one of them engaging one side of the leg of the template and the others engaging the opposite side of the leg of the template, at least one of the wheels on the carriage being a traction wheel, and power means on the carriage for driving the traction wheel.

7. A template-guided self-propelled carriage adapted for use with an angle-iron template having a leg disposed substantially at right angles to the plane of the work over which the carriage is to be guided and a flange disposed substantially parallel to the plane of the work, said carriage having a plurality of supporting wheels, a traction wheel on the carriage mounted to rotate in a plane substantially parallel to the plane of the work and for engagement with that side of the template leg which is remote from the template flange, power means on the carriage for driving the traction wheel, an undercarriage, wheels carried by the undercarriage and including a retaining wheel mounted thereon to rotate in a plane substantially at right angles to the plane of the work and so that its periphery can engage the underside of the template flange and pressure wheels mounted to rotate in a plane substantially parallel to the plane of the work for engagement with that side of the template leg which lies under the template flange, means for yieldingly urging the pressure wheels toward the traction wheel so that the traction wheel and pressure wheels can grip the leg of the template between them, and means under the carriage for receiving and retaining the undercarriage and into which the undercarriage can be slid by movement of the undercarriage laterally of the template to bring said retaining wheel into posi-

tion under the flange of the template and to bring said pressure wheels into proper position to be yieldingly urged against the template leg under the template flange.

LOUIS TROMBETTA.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,172,933	Bucknam	Feb. 22, 1916
1,600,767	Lockwood	Sept. 21, 1926
1,748,870	Eberle	Feb. 25, 1930
2,156,847	Gregory	May 2, 1939

FOREIGN PATENTS

Number	Country	Date
8,030	Great Britain	1903