

PUBLISHED
JUNE 8, 1943.
BY A. P. C.

F. C. SOUCHE
AUTOMATIC LINE CENTERING AND SHIFTING
DEVICE FOR TYPE SETTING MACHINES
Filed Oct. 15, 1942

Serial No.
462,098

2 Sheets-Sheet 1

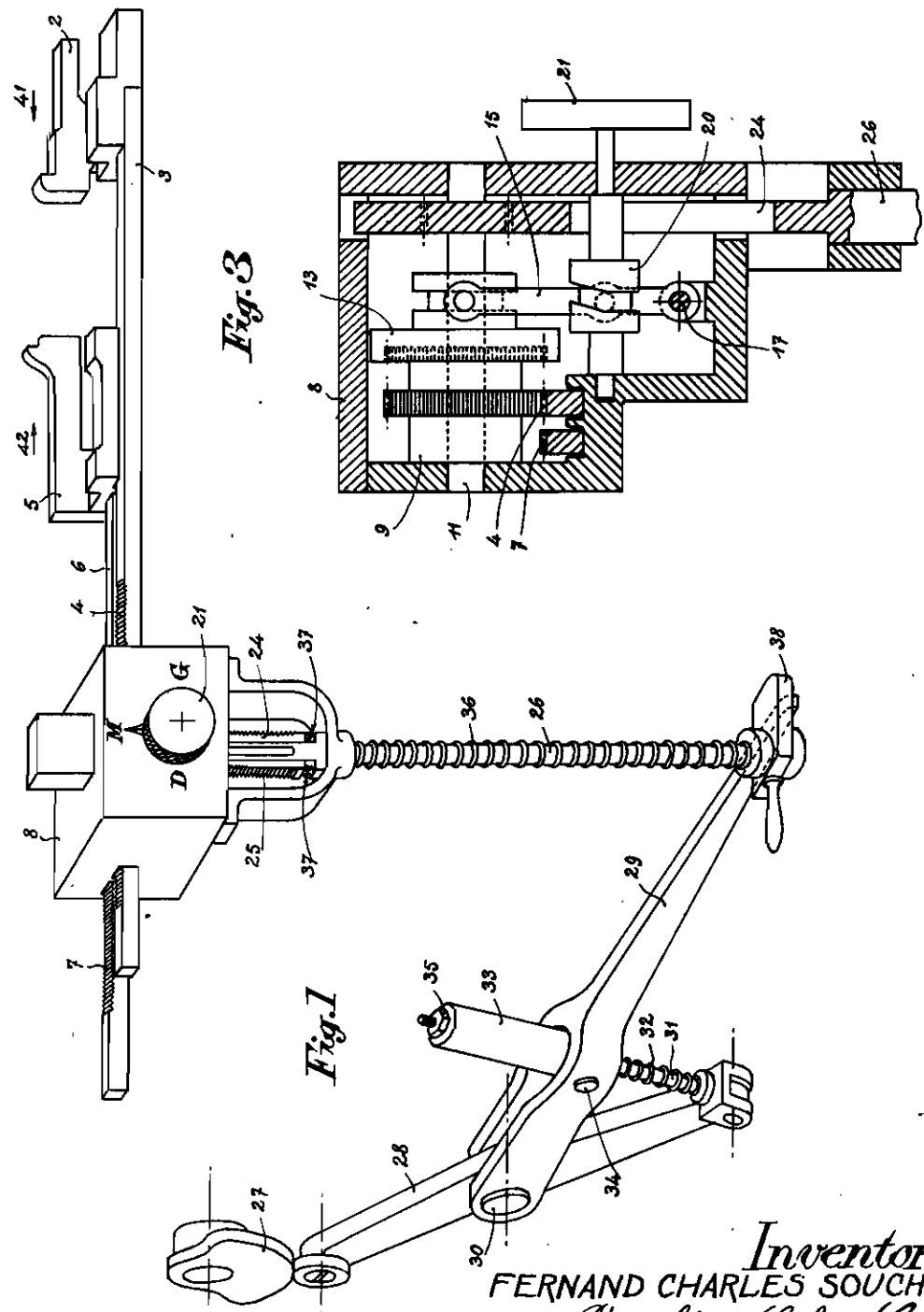


Fig. 3

Fig. 1

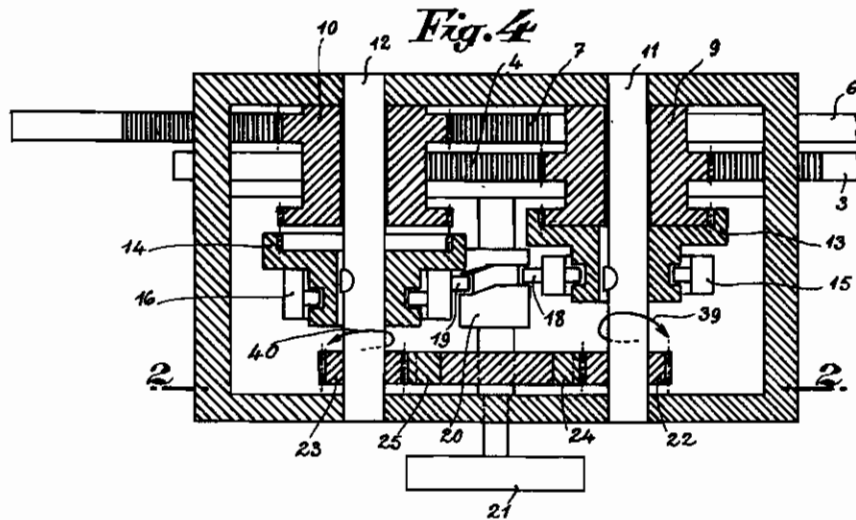
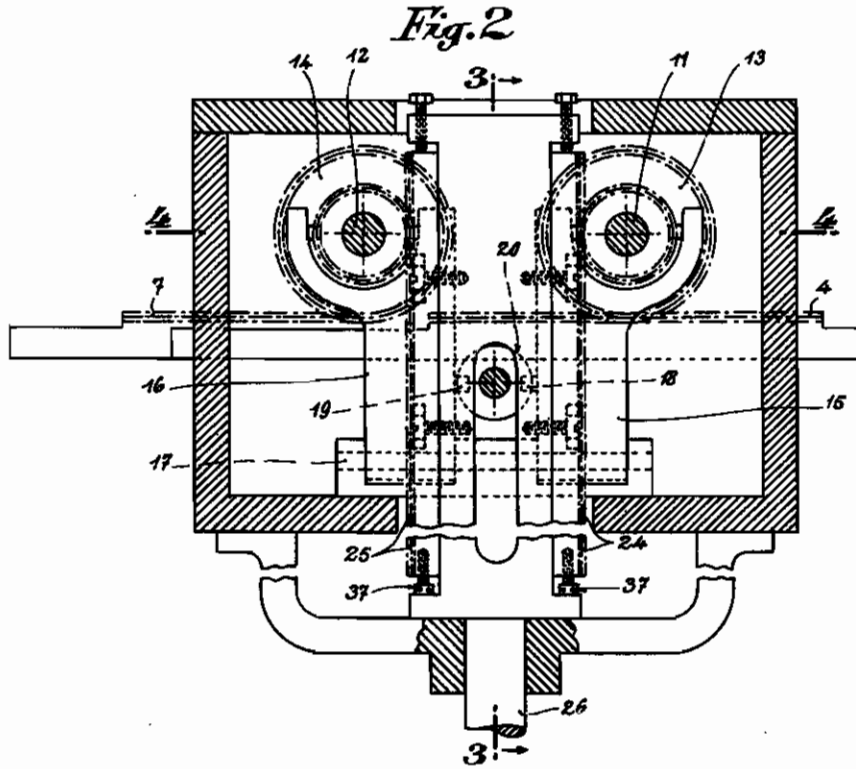
Inventor:
FERNAND CHARLES SOUCHE
By Haseltine, Lake & Co.
Attorneys.

PUBLISHED
JUNE 8, 1943.
BY A. P. C.

F. C. SOUCHE
AUTOMATIC LINE CENTERING AND SHIFTING
DEVICE FOR TYPE SETTING MACHINES
Filed Oct. 15, 1942

Serial No.
462,098

2 Sheets—Sheet 2



Inventor:
FERNAND CHARLES SOUCHE
By Haseltine, Lake & Co.
Attorneys.

ALIEN PROPERTY CUSTODIAN

AUTOMATIC LINE CENTERING AND SHIFTING DEVICE FOR TYPE SETTING MACHINES

Fernand Charles Souche, Oullins, France; vested in the Alien Property Custodian

Application filed October 15, 1942

There exist several systems for the automatic centering of the lines in linotypes and the like type setting machines, but such systems are only adapted for use with those machines for which they have been designed. These systems are generally delicate in their handling and are easily put out of adjustment; the mechanical part, housed within the vice of the type setting machine is often locked by metal scraps from the parings formed by the line calibrating knife and moreover it is subject to the impact of any fortuitous jet of molten metal.

My invention has for its object an automatic line centering and shifting device which may be mounted without any modification on all linotypes and the like type setting machines, said device centering with the greatest accuracy the text or shifting towards the right or the left the lines of lead alloy molten by the type setting machines for printing purposes.

In my improved device, the spacing between the two jaws between which the line is cast, is controlled by a rack acting on each jaw and adapted to be displaced by means of a set of pinions driven in the required direction by another rack. Last mentioned rack is pivotally secured to the end of a connecting-rod yieldingly connected in its turn to a lever which rocks under the action of a cam keyed to the cam shaft of the linotype or the like machine.

Means are also provided for engaging at a time if required only one of the two racks which control the jaws and also for putting the device in or out of gear.

Appended drawings show, by way of example, a form of execution of my invention.

Fig. 1 is a perspective view of the whole device, designed for the case where the control is obtained through the addition of a complementary cam on the cam-shaft carrying for instance the cam actuating the first elevator of the type setting machine.

Fig. 2 is a cross-section along line 2—2 of Fig. 4, showing the inside of the mechanism-carrying casing.

Fig. 3 is a cross-section along line 3—3 of Fig. 2.

Fig. 4 is a cross-section along line 4—4 of Fig. 2.

According to my invention, the automatic centering operations are performed through the mechanical control of the vice jaws.

The right hand jaw 2 (Fig. 1) is integral with a rod 3 the end of which is provided with a rack 4.

The left hand jaw 5 (Fig. 1) is integral with another rod 6 the end of which is also provided with a rack 7.

The portions of the rods 3 and 6 which are provided with the rack teeth run through the casing 8 and are constantly in gear respectively with the pinion 9 through the rack on rod 3 and with the pinion 10 through the rack on rod 6 (Figs. 2 and 4).

The pinions 9 and 10 are loosely mounted on the corresponding shafts 11 and 12, and may be engaged respectively with the bosses 13 and 14 (Figs. 2, 3, 4) mounted on the shafts 11 and 12. These bosses 13 and 14 are provided with an inner toothwork having the same pitch as the racks 4 and 7 and adapted to engage a cooperating toothwork on the pinions 9 and 10 respectively. Said bosses are keyed to their shafts 11—12 with slight friction so as to be capable of a longitudinal sliding motion along said shafts under the action of the small levers 15—16 (Figs. 2 to 4). These small levers are pivotally secured at their lower free end to the hinge 17 and carry on their medial portion a spigot 18, 19 engaging a groove in the cam 20. This cam controlled by the handwheel 21 is adapted to cause these levers to make the system of bosses 13, 14 occupy one of the three following positions:

First position: The boss 13 has advanced towards engagement with the pinion 9 while the boss 14 has receded away from the pinion 10.

Second position: both bosses have advanced towards the corresponding pinions 9 and 10.

Third position: the boss 13 has receded away from the pinion 9 while the boss 14 has advanced towards the pinion 10.

The shafts 11 and 12 also carry the pinions 22 and 23 which are frictionally fitted over these shafts and which mesh with the vertical racks 24 and 25 (Figs. 2 to 4).

These vertical racks are carried by a support 26 (Figs. 1 to 3) which receives an upwardly directed motion from the cam 27 through the agency of the connecting rod 29 (Fig. 1) pivotally secured to the lever 28 at the stationary point 30. The cam 27 is suitably keyed to the cam-shaft carrying for instance the cam controlling the first elevator of the machine. The connecting rod 29 and lever 26 are interconnected through a yielding coupling constituted by a small connecting rod 31 (Fig. 1) and by a spring 32 wound round same and bearing on one hand against the stirrup-shaped end of the small connecting rod 31 and on the other against the bottom of the tubular member 33; said tubular mem-

ber 33 which is provided with a shoulder is fitted over the rod 31 and is itself pivotally secured to the connecting rod 29 through the spigots 34; a nut 35 screwed over the threaded upper end of the small connecting rod 31 is urged against the shoulder on member 33 so as to limit the expansion of the spring 32 and to define the inoperative position of the connecting rod 29.

A spring 36 (Fig. 1) wound round the movable support 26 is adapted to return to its inoperative starting position the whole mechanism in the casing.

Adjustable stops 37 (Fig. 1) are provided between the support 26 and each of the racks 24 and 25 so as to allow modification of the position imparted to the jaws through said racks. These stops may be constituted by screws screwed into the lower end of each rack and the head of which rests on a lateral lower projection of the support 26. A complementary screw passing through the upper part of said support 26 urges the upper end of the corresponding racks downwards and thereby the head of the screw 37 against the lower projection of the support. While lateral set screws are provided for holding the rack when it has entered the desired position, the screws or stops 37 are provided with apertures for the insertion of the tool which is to rotate them and thus make the racks slide vertically with reference to the part of support 26 extending between said racks. A member 38 (Fig. 1) or pivoting stop carried by the lower end of the support may occupy two positions at 90° one with reference to the other in one of which position it provides for the engagement and in the other for the disengagement of the rod 29 with reference to the movable support 26.

The operation of the arrangement is as follows:

I—Filling-in or shifting of short lines from the right-hand side

The operator brings the mark on the hand wheel 21 on the casing in front of the corresponding mark, say the letter D, engraved on or otherwise affixed to the casing 8 of the device. Through this operation and through the agency of the cam 20 and of the small levers 15 and 16 (Fig. 4), the boss 13 is set in operative connection with the pinion 9 while the boss 14 recedes out of operative connection from the pinion 10. As part 36 is set manually in its operative position (Fig. 1) when the elevator has brought the types between the jaws 2 and 5, the cam 21, acting on the lever 26 acts therethrough on the support 26 and causes the racks 24 and 25 to move upwardly; during this rising motion, the racks 24 and 25 produce the rotation of the shafts 11 and 12 in the direction of the arrows 39 and 40, which drives the bosses 13 and 14 in the same direction as the shafts carrying them.

As the boss 14 is disengaged with reference to the pinion 10, the latter remains stationary and consequently the left hand side jaw 5 remains in its position of rest in contact with its stop, which is in an adjustable position corresponding to a predetermined length of line.

On the contrary, the right-hand side jaw 2 is driven in the direction of the arrow 41 (Fig. 1) until the pressure it exerts on the types pushed by its movement against the stationary jaw 6 is sufficient to compress the spring 32 in the yielding connection between the members 28 and 29 and to stop any further movement of said member 29. At this moment, a system of levers carried by the jaw 5 sets free the stop arresting the

forward motion of the piston projecting molten metal into the mould of the machine. This system of levers forming no part of the invention is a usual component of linotypes and needs not be described or shown.

Once the line is cast, the cam 21 sets the lever 28 free so that the rod 29 moves downwardly under the action of the spring 36 and returns the whole mechanism together with the jaw 2 to its starting position.

II—Centering

The operator brings the mark on the hand-wheel 21 in front of another mark, say the letter M, on the casing of the device.

For this position of the handwheel, the bosses 13 and 14 are in engagement respectively with the pinions 6 and 10. When caused to rise, the racks 24, 25 drive the corresponding pinions 6 and 10 which cause the jaws to move, the jaw 2 in the direction of the arrow 41 and the jaw 5 in the direction of the arrow 42. The two jaws move through exactly equal amounts and hold the types fast between one another in the position defined by the adjustable stops 37, until the spring 32 begins to be compressed; when the line has been stereotyped the mechanism is returned together with the jaws to starting position by the spring 36.

III—Left hand shifting of the line

The operator brings the mark on the hand-wheel 21 in front of a further mark, say the letter G, on the casing 8. For this position of the handwheel, the boss 13 is disconnected with reference to the pinion 9 while the boss 14 is in engagement with the pinion 10.

The right hand jaw is thus not driven by the cam-actuated system and remains against its stop, while the left hand jaw is driven in the direction of the arrow 42.

IV—Change of breadth of the line intended for setting

The operator brings the mark on the hand wheel 21 in front of the mark D on the casing. The left hand jaw is thus held out of engagement.

Supposing the half-nut locking the rod used for justifying is raised, in the usual manner by a lever pivotally secured say to the cover of the casing, the operator will then bring the mark borne by said justifying rod in front of the mark corresponding to the length of line desired on the usual scale carried in the case considered by the cover of the casing 8. The half-nut locking the justifying rod being lowered back into operative position through the agency of a spring, the operator brings the right-hand jaw against said rod in the usual manner and he then acts on the handwheel 21 to obtain the desired displacement of the jaw 2, the different points of engagement of the boss 13 corresponding to the divisions of the justifying rod of the jaws.

V—Setting the device out of gear

The operator brings if desired the mark on the handwheel 21 in front of the letter D. The left-hand jaw is thus free. For setting the device out of gear, he disengages the member 38 and the type-setting machine works thereafter as an ordinary machine.

My improved device removes the necessity of using quadrats and spacing strips for finishing short lines such as those ending paragraphs. It avoids the handling of such quadrats and spac-

ing-bands for centering purposes or for shifting the text leftwards. For type-setting an ordinary text, it does away with the use of the spacing-strips required heretofore for giving all the lines the same length.

My improved device is secured laterally with reference to the vice in the place of the usual justifying support for the vice jaws, which support is then secured to the rear of the casing of the centering device described. All the parts of my improved device are housed in a fluid-tight casing which protects them against the impact of lead scrap and accidental jets of molten metal. Said device also forms a very resistant unit mechanically incapable of disturbances in its adjustment. The change of operation between center-

ing, shifting rightwards and shifting leftwards is performed easily without any shock through actuation of the handwheel which is automatically held in either of the three operative positions provided for the device.

A mere rotation through 90° of an easily accessible hand-actuated stop allows neutralisation of the device when it is desired to make the type-setting machine work as an ordinary machine.

By securing a cam element on to the cam controlling the arm of the hammers adjusting the length of the line, the control of my device may be obtained through said cam element acting as cam 27.

FERNAND CHARLES SOUCHE.