

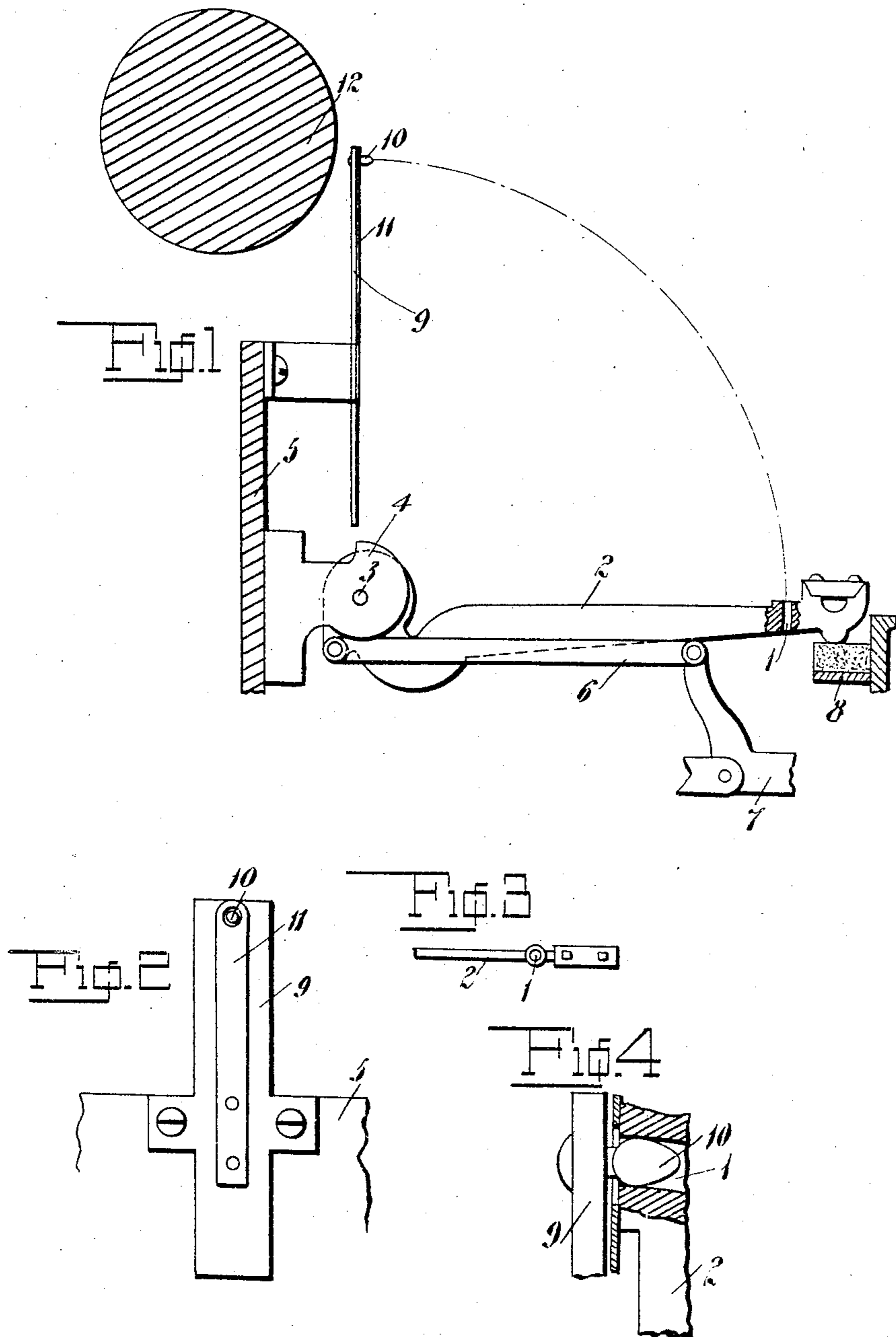
No. 786,056.

PATENTED MAR. 28, 1905.

J. B. SECOR.

ALINING DEVICE FOR TYPE WRITING MACHINES.

APPLICATION FILED OCT. 28, 1903.



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# UNITED STATES PATENT OFFICE.

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## ALINING DEVICE FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 786,056, dated March 28, 1905.

Application filed October 28, 1903. Serial No. 178,810.

*To all whom it may concern:*

Be it known that I, JEROME B. SECOR, a citizen of the United States, residing at Derby, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Alining Devices for Type-Writing Machines, of which the following is a specification.

My present invention relates to alining devices for type-writing machines, and has for its object to provide an alining device for type-bars which is simple and cheap of construction and highly efficient in use.

Heretofore in the construction of alining devices for type-bars it has been impossible to provide a device wherein the alinement of the type-bars will be perfect notwithstanding the thickness or bulk of the paper to be printed upon. None of the type-bars or alining devices heretofore constructed have been efficient enough to guide the type end of the type-bar continuously until the moment when the type strikes on the platen or paper carried thereby. As it is often necessary to print on from one to perhaps ten sheets of paper, as in manifolding, it is necessary to have the type guided perfectly and continuously after approaching to within approximately one-tenth of an inch of the platen. Heretofore it has been customary in devices of this character to provide a V-shaped notch to guide the movement of the type-bar. Such an arrangement is deficient, inasmuch as the type-bar is controlled only at the actual finish of the stroke, which makes the operation of the device practically valueless because of the lack of range of control.

In the present arrangement I employ a spherical or acorn-shaped pin or a pin of other suitably-rounded shape in combination with a curved perforation or hole struck on an arc with its center at the pivotal point of the type-bar, the pin being adapted to enter the perforation and guide the type-bar continuously for perhaps one-eighth of an inch or more in its final approach to the platen, the range of said

guiding operation being determined by the length of the rounded pin and the length of the curved perforation. This arrangement has proved entirely satisfactory in operation, producing a perfect alinement despite the number of sheets printed upon or the thickness of the paper.

In the accompanying drawings I have shown only those parts of a type-writing machine which are necessary to illustrate my invention.

Figure 1 represents a sectional side elevation of my improved alining device. Fig. 2 is a front detail view showing a portion of the machine-bridge and alining-pin bracket mounted thereon. Fig. 3 is a plan view of a portion of one of the type-bars, showing the type-head and alining-hole; and Fig. 4 is a side view, partly in section, of portions of the alining-pin bracket and the rebound-spring.

Referring now to the drawings in detail, 1 represents a curved or round hole or perforation in the type-bar 2, pivoted at 3 to the bracket 4, mounted on the bridge 5 of any type-writing machine, such type-bar 2 being operated in any well-known manner—such, for instance, as by link 6 and bell-crank 7, adapted to be engaged by the usual key mechanism.

8 is a padded seat upon which the type-bar 2 normally rests.

Positioned on the bridge 5 above the bracket 4 is an arm 9, carrying at its upper end a spherical or an acorn-shaped alining-pin or a pin of any other suitable rounded shape 10, extending through the free end of a rebound-spring 11, secured to the arm 9. The hole 1 has those opposite guiding-walls that are normal to the plane in which the type-bar swings parallel and curved in arcs having their centers at the pivot of the type-bar. The pin 10 at its greatest diameter fits when at any place in the hole 1 in a line radial to the pivot of the type-bar between the guiding-walls of the said hole. The pin 10 being of spherical form where it contacts with the walls of the hole 1 and the hole 1 being in the arc of a circle centering at

3, the type-bar pivot, exact alinement of the type at the printing-point is insured even when several thicknesses of paper are on the platen 12. To accommodate slight irregularities of hanging or motion of the type-bars, the end of the pin 10 is pointed, making the pin preferably of acorn shape, the result of which is to guide the pin 10 into the hole 1. The diameter of the hole 1 is just large enough to admit the acorn-shaped or spherical pin 10. The pin 10 being spherical in shape at its largest diameter, where it contacts with the guiding-perforation 1, and slightly less in diameter than the perforation 1, the surface of the same fits snugly in contact with the parallel curved walls of the perforation 1, making it impossible for the bar 2 to vibrate out of its proper path and guiding the type-bar 2 continuously throughout the last part of its stroke. The spring 11 prevents the bar 2 from coming to a dead-center and accelerates the return movement of the same.

I do not wish to limit my invention to the exact details of structure, inasmuch as many changes may be made without departing from the spirit of my invention—such, for instance, as the mounting of the pin 10 upon the type-bar 2 and provision of the curved hole 1 in the arm 9 or in some part carried thereby.

The essential feature of my alining device consists in the combination of a pin or projection, preferably of globular form, and a cooperating parallel-sided or non-converging hole having those opposite guiding-walls that are normal to the plane through which the type-bar swings curved in arcs concentric with the pivot of the type-bar. By the term "globular" I intend to define a pin which is convex in the plane of its motion and having its greatest diameter away from its base or attachment to the bar by which it is carried, so that it may have some freedom of movement within a non-converging aperture after the largest diameter of the pin has entered such tubular aperture in which it fits. I am thus enabled to effect equally accurate alinement with great variation in the number of sheets or thickness of the body of the paper on the platen. My invention is thus of great utility in manifold and is definitely distinguished from an alining device consisting of a conical pin fitting in a cavity of corresponding form and in which the alining-pin must come to a definite and positive seat to effect an accurate alinement. With such conical pin and cavity this accurate alinement is effected only at the extreme end of stroke of the type-bar, and any additional thickness of paper on the platen will impair the accuracy of alinement by preventing accuracy of fit between the alining members.

From the above explanation it will be apparent that my alining-pin may have any

shape that will adapt it to cooperate, as described, with an arcuate non-convergent perforation—that is to say, a perforation in which the pin may move some distance after the alining engagement is established, thus guiding the type-bar during the latter part of its stroke.

The acorn shape which I have here shown is my preferred globular or spheroidal form for the alining-pin, because the pointed apex renders the engagement between the globular pin and the tubular orifice more sure and easy in the rapid movement of the type-bar.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In an alining device for type-writing machines, the combination of a type-bar and an alining-bar one of said members provided with a globular pin and the other with a curved parallel-sided perforation in which the globular pin fits and travels during the latter part of the type-bar movement so as to guide the same toward the end of the stroke, substantially as described.

2. In an alining device for type-writing machines, the combination of a type-bar having a curved aperture provided with parallel guiding-walls and a support bearing a globular pin adapted to fit and move within said aperture in order to guide the type-bar in the latter part of its movement, substantially as described.

3. In an alining device for type-writing machines, the combination of a type-bar having a curved aperture having parallel guiding-walls and a support bearing an alining-pin of globular form, adapting it to fit and travel within said guiding-aperture, and with a tapering point to facilitate its engagement with the guiding-aperture, substantially as described.

4. In an alining device for type-writing machines, the combination of a pin of globular form with a tapering point mounted on the frame of the machine and type-bar pivoted in the frame having a perforation to receive and guide said pin, having its guiding-walls curved on an arc concentric with the pivot on which the type-bar moves, substantially as described.

5. In an alining device for type-writing machines, the combination with a bracket, a leaf-spring on said bracket having a perforation therein and a rounded or acorn-shaped pin seated in said bracket and projecting through said perforation, of a type-bar provided with a curved hole struck in the arc of a circle centering at the pivotal point of the said type-bar, said hole adapted to engage the said rounded or acorn-shaped pin.

6. In a type-writing machine, a pivoted type-bar and a support; one of said parts being provided with an opening formed with opposite parallel guiding-walls normal to the

plane in which the type-bar swings and formed  
in arcs having their centers at the type-bar  
pivot; the other of said parts being provided  
with a pin fitting between said guiding-walls  
5 in a line radial to the type-bar pivot; said guid-  
ing-walls continuing a distance sufficient to  
insure continuing alinement of the type-bar

during the latter part of its stroke so that it  
is alined when arrested at different distances  
from the platen.

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