

No. 635,978.

Patented Oct. 31, 1899.

G. F. READ.

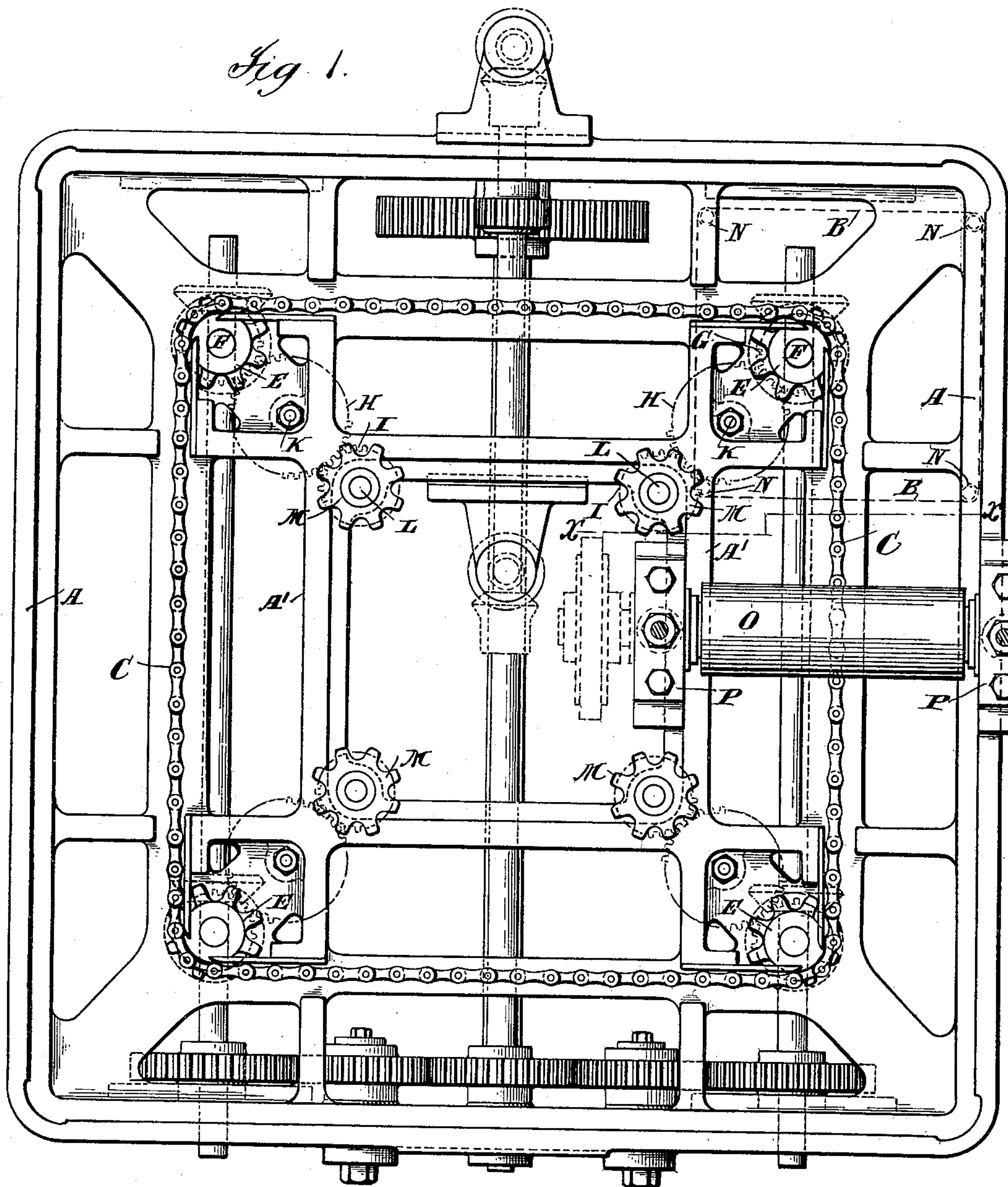
BED MOTION FOR TRAVELING BEDS.

(No Model.)

(Application filed June 2, 1898.)

2 Sheets—Sheet 1.

Fig. 1.



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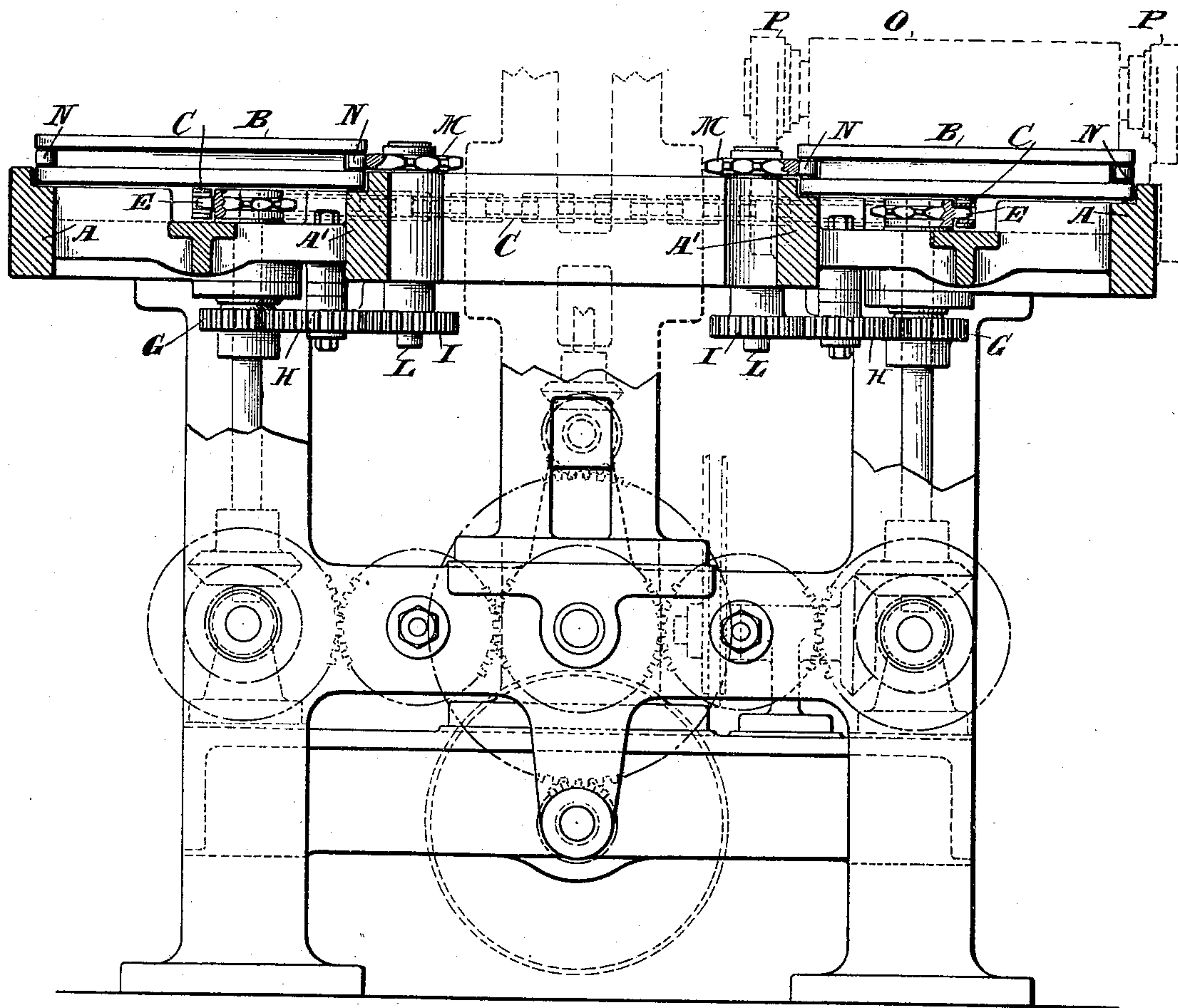
BED MOTION FOR TRAVELING BEDS.

(No Model.)

(Application filed June 2, 1898.)

2 Sheets—Sheet 2.

Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## BED-MOTION FOR TRAVELING BEDS.

SPECIFICATION forming part of Letters Patent No. 635,978, dated October 31, 1899.

Application filed June 2, 1898. Serial No. 682,334. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE F. READ, a citizen of the United States, residing at New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Bed-Movements for Traveling Beds, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.  
10 This invention relates to improved means for controlling the movement of traveling beds.

In certain classes of machines employing traveling beds, more particularly in plate-printing machines, it has been customary to cause the bed to move in an angular path—as, for instance, about the sides of a rectangle. Difficulty has been experienced, however, in controlling the motion of the bed at the point of change of direction in its movement. At this point, as it is no longer guided by the ways and is under the influence of the driving power, which is usually a chain or similar device attached to it at or near its  
15 center, the bed tends to swivel or swing as it passes from one line of movement to the next, and therefore enters the next guideway angularly. This causes a shock and brings undue strain upon the driving devices, which  
20 when this condition occurs have to swing the bed back into its proper position as well as cause it to move ahead. Attempts have been made to overcome this tendency by locating spring guides or buffers upon or in proximity to the outer one of the ways upon which the bed travels; but the operation of such devices has not been satisfactory. The bed still enters the next guideway or assumes its next line of movement in an angular position, and the injurious shock and strain before referred to are not done away with.

The object of this invention is to control the movement of the bed at the point of its change of direction with absolute certainty, thereby causing it to enter its next guideway or assume its next line of movement in a proper position so that it will begin its movement along a right line instead of having to be swung into a right line by the driving devices.  
45 vices.

With this object in view the invention con-

sists in certain parts, improvements, and combinations, which will be hereinafter fully described, and then pointed out in the claims hereunto appended.

In the accompanying drawings, which constitute a part of this specification, Figure 1 is a plan view of a traveling-bed machine with the improved controlling devices attached thereto. Fig. 2 is a sectional view  
55 taken on the line  $x x$  of Fig. 1.

In the machine which illustrates the preferred embodiment of the invention,  $A A'$  indicate the ways upon which the bed travels and by which it is guided in its right-line  
60 movement. In the machine shown these ways form rectangles; but it is obvious that the ways might form any other polygonal figure. These ways are formed on or are supported on the frame of the machine in any desired  
65 manner.

$C$  indicates a chain to which the bed  $B$  is secured in any convenient manner, usually by making one of the link-pins long and attaching it to the bottom plate of the bed at  
70 or near its center, though any other form of attachment may be selected. The chain  $C$  is driven by means of a sprocket-wheel  $E$ , which is mounted on a shaft  $F$ , to which power is applied in any convenient or desired manner. 80  
The driving-sprocket  $E$  is preferably located at the angle in the ways or at the point where the bed in its movement changes its direction. At each of the other angles in the ways similar sprocket-wheels  $E$  are located, but only  
85 one of these wheels need be driven. The shaft  $F$  has mounted upon it a gear-wheel  $G$ , which engages an intermediate  $H$ , preferably suitably mounted upon a stud  $K$ , which is supported in the frame of the machine. The in- 90  
termediate  $H$  meshes with a gear  $I$ , which is mounted upon a short shaft  $L$ , also having its bearings in the frame of the machine at or about the angle of the inner way upon which the bed travels. Upon the upper end of the  
95 shaft  $L$  is located a guiding-pin  $M$ . This guiding-pin  $M$  preferably has the same number of teeth as the sprocket-wheel  $E$  and engages with a stud  $N$ , which is located at the inner corner of the bed and, as herein shown, 100  
between the parts of the bed. The pinion  $G$  and the pinion  $I$  have the same number of



teeth, and consequently the shaft L moves at the same speed as the shaft F, and the guiding-pinion M moves at the same speed as the sprocket-wheel E. It will of course be understood that one of these guiding-pinions will be located at each point of change of direction in the movement of the bed.

When the bed reaches the angle in the ways and is about to change the direction of its movement, the stud N is engaged by the teeth of the guiding-pinion M. Thereafter in its movement the bed is steadied and positively controlled by the guiding-pinion, the teeth of which act to carry it around the angle or point where its direction of movement changes. It will be observed that the bed is thus positively controlled at two points—viz., at the point where the power is applied and at the point where the teeth of the guiding-pinion catch it—in contradistinction to the devices heretofore adopted which do not exercise a positive controlling action upon it, and it is thus caused to pass from one guideway to the next or assume its next line of movement without the objectionable swinging or swiveling action before described.

O indicates an impression-cylinder, which is suitably mounted in the ordinary bearings (indicated at P) and driven in any suitable or convenient way, as by a belt-pulley, which is indicated in dotted lines in Fig. 1.

While the bed is shown as driven by a sprocket and chain, it might of course be driven in any other suitable and convenient way. While also the power for driving the sprocket-chain is shown as applied to the shaft of the sprocket-wheel E, it might be applied in any other convenient manner—as, for instance, by a sprocket-wheel located intermediate the points at which the bed changes the direction of its movement. While, furthermore, the best results are secured by providing the guiding-pinion M with teeth corresponding in number and arrangement to those on the sprocket E, it is obvious that such an arrangement of teeth is not necessary. The number of teeth on the guiding-pinion may be varied, so long as the guiding-pinion is of the same pitch-diameter as and moves at the same rate of speed as the sprocket-wheel E. While, too, it is deemed preferable to locate the guiding-pinion at the angle of the inner way and cause its teeth to engage a pin upon the bed, it is obvious that it might be arranged so that the teeth would engage the corner of the bed itself instead of a pin thereon. So, too, it is obvious that the pinion might be located elsewhere than at the angle of the inner way. It might, for instance, be located at the angle of the outer way, in which case, of course, the location of the pin upon the bed will be changed to correspond with the position of the pinion. Various other locations of the pinion are also possible, the essential feature of the invention being to so locate the pin and pinion that the bed as it changes its course of direction will be con-

trolled at two points. Devices other than the guiding-pinion may also be used to direct and control the bed in its movements, as the invention in its scope comprehends, broadly, the idea of controlling the movement of a bed upon substantially parallel ways which lie in substantially the same plane by positive controlling devices which act upon the bed at two points as it changes its direction of movement, thus preventing any swiveling or swinging action of the bed and causing it to move truly around the angle of the ways. While the invention is shown as applied to the bed of a plate-printing machine, it is obvious that it is not restricted to such an application, but may be used in any form of machine where it is desired to cause the bed to travel in an angular path, and that, too, whether the ways form a closed polygonal figure or not.

What is claimed is—

1. In a bed-movement for traveling beds, the combination with the bed, of substantially parallel angular ways therefor lying in substantially a single plane, and devices for exerting a positive controlling action upon the bed at two points as it changes its direction of movement, substantially as described.
2. In a bed-movement for traveling beds, the combination with the bed, of angular ways therefor lying in substantially a single plane, means for causing and controlling its movement acting upon a given point on the bed, and a moving controlling device acting at another point on the bed as it changes its direction of movement, substantially as described.
3. In a bed-movement for traveling beds, the combination with the bed, of angular ways therefor lying in substantially a single plane, and a moving controlling device located at the point of change of direction in the movement of the bed and exerting a positive controlling action upon the bed, substantially as described.
4. In a bed-movement for traveling beds, the combination with the bed, of angular ways upon which it travels, and a controlling device located at the angle of the inner way, substantially as described.
5. In a bed-movement for traveling beds, the combination with the bed, of angular ways upon which it travels, and a moving controlling device located at the angle of the inner way, substantially as described.
6. In a bed-movement for traveling beds, the combination with the bed, of angular ways, means for causing the bed to travel upon the ways, and a moving controlling device located at the angle of the inner way and having a movement corresponding to the movement of the bed-driving devices, substantially as described.
7. In a bed-movement for traveling beds, the combination with the bed, of angular ways, means, as a chain and sprocket, for causing the bed to travel on said ways, and a controlling device located at the angle of



the inner way and moving at a speed corresponding to that of the driving-sprocket, substantially as described.

8. In a bed-movement for traveling beds, the combination with the bed, of angular ways, means, as a chain and sprocket, for causing the bed to travel on said ways, and a controlling device located at an angle of one of the ways and moving at a speed corresponding to that of the driving-sprocket, substantially as described.

9. In a bed-movement for traveling beds, the combination with the bed, of angular ways upon which it travels, means, as a sprocket and chain, for causing the bed to travel upon the ways, a guiding-pinion located at the point of change of direction in the movement of the bed for engaging and controlling the bed in its movement, and means for driving the guiding-pinion, substantially as described.

10. In a bed-movement for traveling beds, the combination with the bed, of angular ways upon which it travels, means, as a sprocket and chain, for causing the bed to travel upon the ways, a guiding-pinion located at the angle of the inner way for engaging and controlling the bed in its movement, and means for driving the guiding-pinion from the shaft of the sprocket-wheel and at the same rate of speed as the sprocket-wheel, substantially as described.

11. In a bed-movement for traveling beds, the combination with the bed, of angular ways, means, as a chain and sprocket, for causing the bed to travel upon the ways, a guiding-pinion located at the angle of the inner way and driven from the shaft of the sprocket-wheel, and a pin upon the bed with which said guiding-pinion engages, substantially as described.

12. In a bed-movement for traveling beds,

the combination with the bed, of angular ways, a driving-sprocket located at the point where the bed changes its direction of movement, a chain engaging said sprocket and suitably connected to the bed, a pinion on the shaft of the sprocket-wheel, a guiding-pinion located at the point of change of direction in the movement of the bed, and gearing between the shaft of said guiding-pinion and the pinion upon the shaft of the sprocket-wheel, substantially as described.

13. In a bed-movement for traveling beds, the combination with a bed, of ways upon which the bed travels, said ways having a plurality of angles therein, and a guiding device located at each of the angles of the inner way, substantially as described.

14. In a bed-movement for traveling beds, the combination with ways upon which the bed travels, said ways having a plurality of angles therein, a sprocket-wheel located at each of the said angles, a moving controlling device located at each of the angles of the inner way, and means whereby the controlling devices are caused to move in unison with the sprocket-wheels, substantially as described.

15. In a bed-movement for traveling beds, the combination with the bed B, of angular ways A A', the chain C, driving-sprockets E located at each of the angles of said ways, intermediates H, pinions I and guiding-pinions M, said guiding-pinions being located at the angles of the inner ways, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE F. READ.

Witnesses:

JAMES Q. RICE,  
T. F. KEHOE.