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F. G. HALL.

DRAFTING INSTRUMENT.

APPLICATION FILED FEB. 8, 1907.

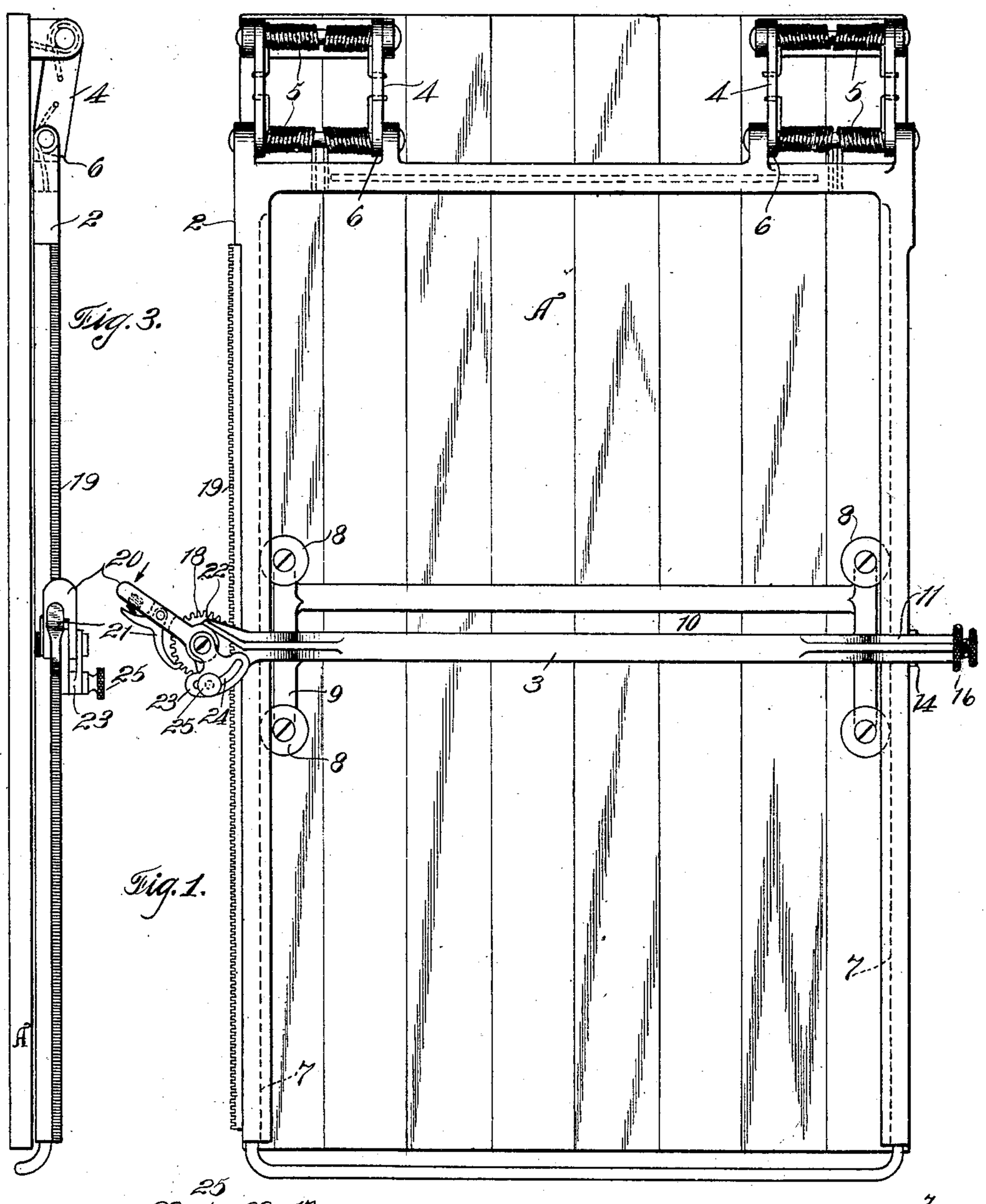

Fig. 1.

Fig. 3.

Fig. 2.

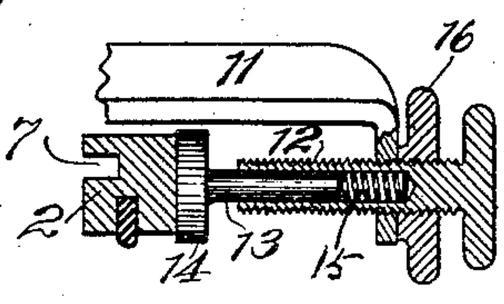

Fig. 4.

WITNESSES:

F. E. Maynard.

J. B. Sousa

INVENTOR:

Frank G. Hall;

BY Geo. H. Strong

ATTORNEY

UNITED STATES PATENT OFFICE.

FRANK G. HALL, OF RIVERSIDE, CALIFORNIA.

DRAFTING INSTRUMENT.

No. 862,635. Specification of Letters Patent. Patented Aug. 6, 1907.

Application filed February 8, 1907. Serial No. 356,299.

To all whom it may concern:

Be it known that I, FRANK G. HALL, citizen of United States, residing at Riverside, in the county of Riverside and State of California, have invented new and useful Improvements in Drafting Instruments, of which the following is a specification.

My invention relates to a device for use, either as a drafting instrument or as a copyholder for typists and others.

My object is to provide an instrument of this character whereby absolute uniformity of spacing may be observed without attention or reference to any scale or system of graduations or the like; but by a simple actuation of a lever working the ruler or spacing bar, step by step across the drafting board or paper support; also providing means whereby the distance advanced by the ruler at each actuation of the lever may be varied; the purpose of this step by step movement of the ruler being this, that where the device is used for drafting, a series of parallel lines may be readily drawn at uniform distances apart, as in cross-hatching and the like, and where the device is used as a copyholder, the device may be set so that each time the ruler or spacing bar is moved, it will advance just one line space, so as to uncover a fresh line of copy.

A further object of the invention is to provide means by which copy of any thickness may be securely held and clamped in position without in any wise interfering with the proper functions and the proper operation of the ruler or spacing bar.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a plan view of the invention. Fig. 2 is an end view of the same. Fig. 3 is a side view thereof. Fig. 4 is a detail in section of the tension device.

A represents a back, or drafting board, table, or any suitable supporting surface for the paper. Hinged to this back is the rectangular clamping and guide frame 2, which carries a spacing bar or ruler 3. The frame 2 is preferably hinged at one end to the back in such fashion as to enable any number of sheets to be placed at one time on the back and underneath the frame and for the frame to clamp these sheets securely and remain always substantially parallel with the back. These results are accomplished in the present invention by the double-spring-pressed hinges 4, which latter consist of pairs of links having one end pivoted to the frame and the other end pivoted to the back; the springs 5 operating on the links to press them always downward against the back.

The upward pivotal movement of the frame on the links 4 is limited by means of the shoulders or corners 6 on the links. The frame being preferably of metal will ordinarily bear with sufficient weight of itself to hold the paper flat on the back A; at the same time if the frame is lifted to allow the paper to be put in or taken out, the end of the frame will engage the shoulders 6 of the links 4, as shown in Fig. 3, and cause the links also to lift upward; the frame and links then turning as a unitary structure about the pivots of the links on the back A.

The side-bars of the frame 2 are provided with suitable trackways as the grooves 7, on or in which run the rollers 8 which are disposed on rigid cross arms 9 at each side and at each end of the ruler 3; the latter is preferably slotted lengthwise as shown at 10, and may or may not be graduated as desired.

One end of the ruler 3 has a bracket 11 extending over and beyond one side of the frame, and this bracket carries a tensioning device by which the perpendicularity of the ruler 3 is maintained with respect to the side-bars of the frame 2. In the present instance, this tensioning device is shown in Fig. 4 as comprising a hollow screw 12 in which a spring-pressed pin 13 is slidable; the pin 13 carries a shoe member 14 adapted to bear on the back of the side-bar of the frame 2. A spring 15 housed inside of the hollow screw 12 acts on the shoe to press it constantly against the frame-guide. By turning the screw 12 properly, the desired adjustment is effected, and this adjustment is maintained by means of the set-nut 16. Since the bracket 11 is arranged between the two adjacent rollers 8, it will be manifest that the suitable tensioning of the parts 13—14 against the side of the frame, will result in preventing any rocking motion of the ruler 3 on either of the rollers 8 which are adjacent to bracket 11; at the same time the spring 15 is sufficiently yielding to allow a free movement of the ruler back and forth across the back or table A. The opposite end of the ruler carries a bracket 17, which extends over and beyond that side of the frame and supports the mechanism by which the ruler is given a step by step movement. As here shown this bracket 17 has journaled in it a gear 18 meshing a rack bar 19 on the adjacent side of the frame 2. A spring-pressed-lever 20 fulcrumed on bracket 17 carries a spring-pressed pawl 21 adapted to engage the teeth of the gear 18. The backward pivotal movement of the lever 20 is limited by the engagement of a shoulder on the lever with a fixed stop 22 on bracket 17. By operating the lever 20 downward or in direction of the arrow, Fig. 1, it will be manifest that by reason of the engagement of the pawl 21 with the teeth of gear 18, or with an equivalent ratchet wheel, and by limiting each downward actuation of the lever 20, a uniform step by step movement may be imparted to the ruler 3.

The distance traversed by the ruler at each actuation of the lever 20 may be varied by suitable means as a pivoted stop plate 23 having a curved slot 24 to accommodate the locking screw 25. This stop plate

23 is arranged in the path of the lever 20, and by suitable adjustment of the screw 25 and a turning of the plate 23, the latter can be made to intercept the downward movement of the lever 20 at any desired point, so that the gear may be moved only one tooth space or several tooth spaces according to the amount of movement it is desired to impart to the ruler 3. This ability to move the ruler rapidly and at successively uniform distances, is advantageous not only in drafting where it is desired to draw a number of parallel lines equal distances apart, but also in transcribing notes, or other copy where the lines of the copy are equally spaced. At the same time the ruler 3 can be moved toward the operator independently of the lever 20; the ratchet wheel in that case running freely underneath the pawl 21. By pressing back on the pawl and lever, the ruler is easily moved to the rear or top of the back or table A.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is—

1. The combination with a suitable paper support, of a frame hinged relative thereto and provided with parallel guides, a ruler-member slidable on said guides, and means carried by the ruler for giving the latter a uniform step by step movement.

2. The combination with a table or like paper support of parallel guides hinged relative to said support, a ruler-member movable on said guides across the table or support, and means for giving the ruler a step by step movement.

3. The combination with a table or like paper support, of parallel guides hinged thereto, a ruler-member movable on said guides across the table, and a pawl and ratchet mechanism carried by the ruler adapted to give the latter a step by step movement.

4. The combination of a back, a rectangular frame, a spring-pressed hinge connecting said frame to the back, and a ruler carried by the frame and movable transversely of the back.

5. The combination of a back, parallel guides hinged thereto, a ruler slidable on said guides, and means carried by the ruler and co-acting with one of said guides to give said ruler a step by step movement.

6. The combination of a back, parallel guides hinged thereto, a ruler slidable on said guides, means carried by the ruler and co-acting with one of said guides to give said ruler a step by step movement, and means including an adjustable stop for regulating the space traversed by the ruler at each step.

7. The combination with a table or like paper support, of a frame having parallel guides, said frame being hinged relative to said table or support, a ruler-member movable on said guides across the table, means for giving the ruler a step by step movement, said last-named means including a pawl and ratchet mechanism carried by the ruler, and means for regulating the space traversed at each step by the ruler.

8. The combination of a back, guides hingedly mounted on said back and arranged one parallel with the other, a ruler movable on said guides, and pawl and ratchet mechanism carried by the ruler and co-acting with the guide to give the ruler a step by step movement.

9. The combination of a back, guides hingedly mounted on said back and arranged one parallel with the other, a ruler movable on said guides, pawl and ratchet mechanism carried by the ruler and co-acting with the guides to give the ruler a step by step movement, and means for maintaining the perpendicularity of the ruler with respect to said guides.

10. The combination of a back, parallel guides carried thereby, a ruler movable on said guides, means for giving said ruler a step by step movement, said ruler having rollers at each end and on each side engaging corresponding tracks on the guides, and an adjustable spring-pressed tensioning device carried by the ruler to maintain the perpendicularity of the ruler with respect to the guides.

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

FRANK G. HALL.

Witnesses:
C. L. McFARLAND,
L. O. HARVNOT.