Nov. 19, 1935. A. J. PLESE 2,021,809

PANTOGRAPH

Filed Aug. 9, 1934

Fig. 1.

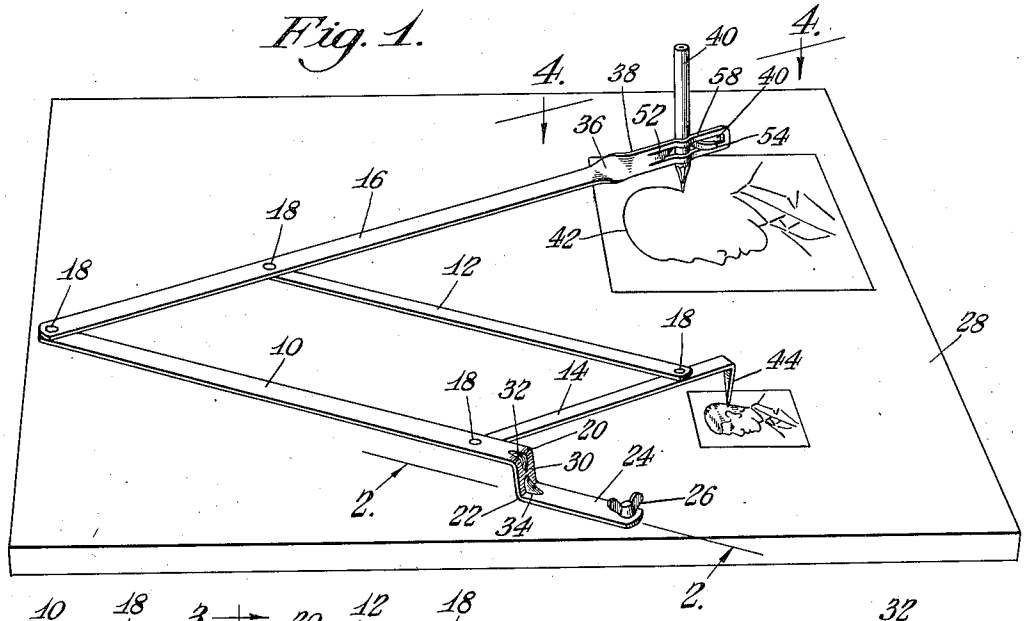


Fig. 2.

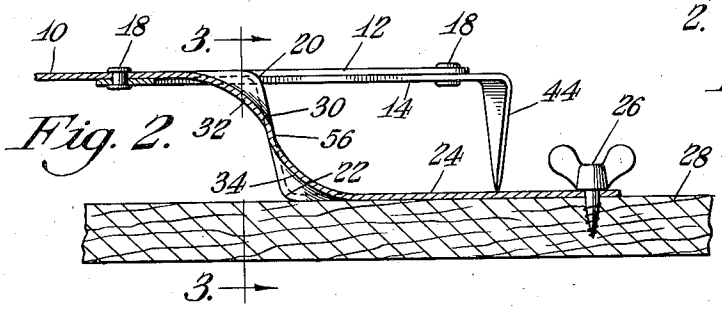


Fig. 3.

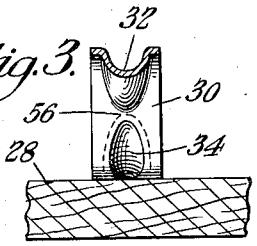


Fig. 4.

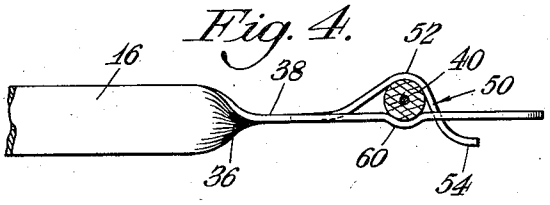
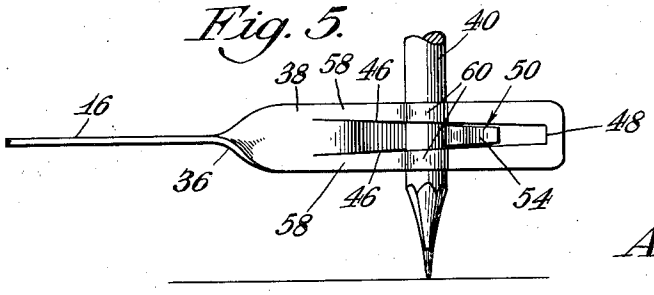


Fig. 5.



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PANTOGRAPH

Anthony J. Plese, Joliet, Ill.

Application August 9, 1934, Serial No. 739,139

6 Claims. (Cl. 33—25)

My invention relates to pantographs, and has among its objects and advantages the provision of an improved pivotal support for the instrument as well as an improved pencil holding construction.

In the accompanying drawing:

Fig. 1 is a perspective view of the device in operation;

Fig. 2 is a sectional view along the line 2—2 of Fig. 1;

Fig. 3 is a sectional view along the line 3—3 of Fig. 2;

Fig. 4 is a top plan view of the pencil or pen holding part of the instrument; and

Fig. 5 is a side elevation of the structure illustrated in Fig. 4.

In the embodiment selected to illustrate the invention, I make use of the usual four bars 10, 12, 14, and 16, movably connected together at the four points 18. These members comprise metal bars and the member 10 is bent at 20 and again at 22 to offset a portion 24 constituting a pivotal support for the instrument as a whole.

Referring to Figs. 1 and 2, the reach 24 is provided with an opening for the reception of a fastening screw 26 arranged to be imbedded in the usual board 28. The screw 26 is turned down sufficiently far to hold the reach 24 in parallel relation with a surface of the board 28. At this time, the instrument proper is supported in spaced relation with the surface of the board 28 because of the vertical reach 30 between the bar 10 proper and the reach 24. Such spacing facilitates efficient manipulation of the device.

I deform the bends 20 and 22 at 32 and 34, respectively, to provide reenforcing ribs tending to give rigidity to the bent parts. The deformation 32 is in the nature of a depressed rib, while the deformation 34 is in the nature of an upstanding rib. Thus, the rib 34 is positioned out of contact with the working surface of the board 28 and will not interfere with the free and easy shifting of the instrument. Similarly, the deformation 32 is depressed so as to eliminate any projections extending beyond the outer face of the bar 10.

I bend the bar 16 at 36 to arrange its end part 38 in a plane at right angles to the bar 16 proper. This end part 38 comprises the marking end of the instrument. I illustrate a pencil 40 as being associated with the part 38 for reproducing an object 42 outlined by the tracing point 44 formed integrally with the bar 14.

It is important that the pencil 40 or other marking device be firmly connected with the part 38. At the same time, it is desirable to make the pencil support simple in construction and easy to manipulate. To this end, I sever the part 38 along two lines 46 and an interconnecting line 48. The finger 50 formed by the lines 46 and 48 is bent out of the plane of the part 38 to provide a curved part 52 arranged to embrace the pencil 40 and press the latter firmly against the part 38. The finger 50 is bent to position its end 54 beyond the opposite side of the part 38, which provides a convenient element for pressing the curved part 52 slightly away from the part 38 to release or receive the pencil 40 or other marking device. The finger 50 comprises an integral portion of the part 38 and possesses sufficient resiliency to firmly hold the pencil 40 in a fixed position.

Referring to Fig. 5, it will be noted that the lines of severance 46 are arranged in angular relation, widening toward the base of the finger 40. This angularity provides free movement of the finger 50 when it is offset according to Fig. 4, in that the edges of that part of the finger 50 projecting through the part 38 will be arranged in spaced relation with the edges of the opening therethrough.

My invention comprises integral parts of the bars 10 and 16, whereby a simple construction of few parts is attained. In other words, the completed device comprises the four essential bars of a pantograph so that there are no extra parts other than the screw 26 for pivotally anchoring the instrument.

The reach 24 is of sufficient length and width to provide an efficient pivotal support for the instrument, while the spacing of the instrument as a whole at a distance from the working surface of the board 28 provides an instrument which is easy to manipulate. Precise adjustment with respect to spacing may be attained by bending the vertical reach 30 in the region indicated at 56. However, the material of the bar 10 is of sufficient stiffness to make the bent adjustment a permanent one until another adjustment is made. Of course, the material is also resilient in a degree.

The finger 50 is easily operated because of the close relation of its end 54 with the part 38. Thus, the end 54 and the part 38 may be grasped for pinching the two parts together. Merely releasing the finger 50 permits it to spring back into clamping relation with the pencil.

I illustrate the two reaches 58 of the part 38 as being depressed at 60 for receiving the pencil 40. The two depressions 60 cooperate with the bent part 52 to provide a three-point contact.

Such a connection prevents accidental shifting of the pencil.

Without further elaboration, the foregoing will so fully explain my invention that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

I claim:

1. In a pantograph comprising four bars movably connected together, one of said bars having an offset portion constituting a pivotal support for the pantograph, and means associated with the offset portion for pivotally anchoring the same to a supporting structure.

2. In a pantograph comprising four bars movably connected together, one of said bars having an end bent to provide an angular reach and a parallel reach offset with respect to the bar proper, said parallel reach comprising a pivotal support for the pantograph, and reenforcing deformations in the angular reach.

3. In a pantograph, a bar comprising a part of the pantograph proper, one end of said bar being bent to arrange a portion of its end in a plane at right angles to a working surface, said end portion being severed to provide an integral finger, said finger being bent to partly embrace a pencil, the bent part of the finger co-operating with the end portion for supporting a pencil in an operating position, said finger having a portion bent to provide a grip part co-operating with the end portion for releasing the pencil when the finger and the end part are pressed together.

4. In a pantograph, a pencil or pen holding device comprising a metallic bar, said bar being severed to provide an integral finger within the contour of the bar, said finger being bent out of alignment with the bar to provide a pencil or pen embracing part cooperating with the bar proper for supporting the pen or pencil in an operating position, certain of the lines of severance being angularly arranged to provide a finger of tapered configuration having a part projecting through the opening originally occupied by the material of the finger.

5. In a pantograph comprising four bars movably connected together, one of said bars having an end bent to provide an angular reach and a parallel reach offset with respect to the bar proper, said parallel reach comprising a pivotal support for the pantograph.

6. In a pantograph, a bar comprising a part of the pantograph proper, one end of said bar being bent to arrange a portion of its end in a plane at right angles to a working surface, said end portion being severed to provide an integral finger, said finger being bent to partly embrace a pencil, the bent part of the finger cooperating with the end portion for supporting a pencil in an operating position, said finger having a portion bent to provide a grip part to be grasped for flexing the finger and releasing the pencil.

ANTHONY J. PLESE.