

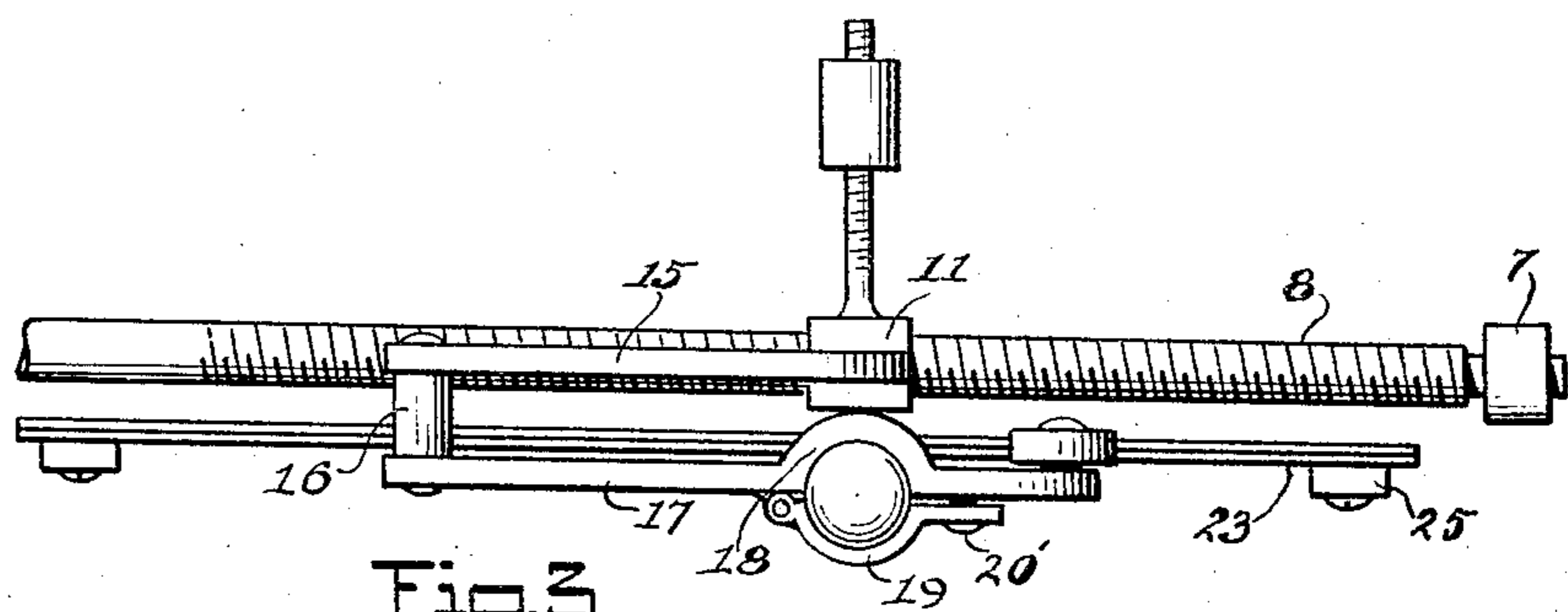
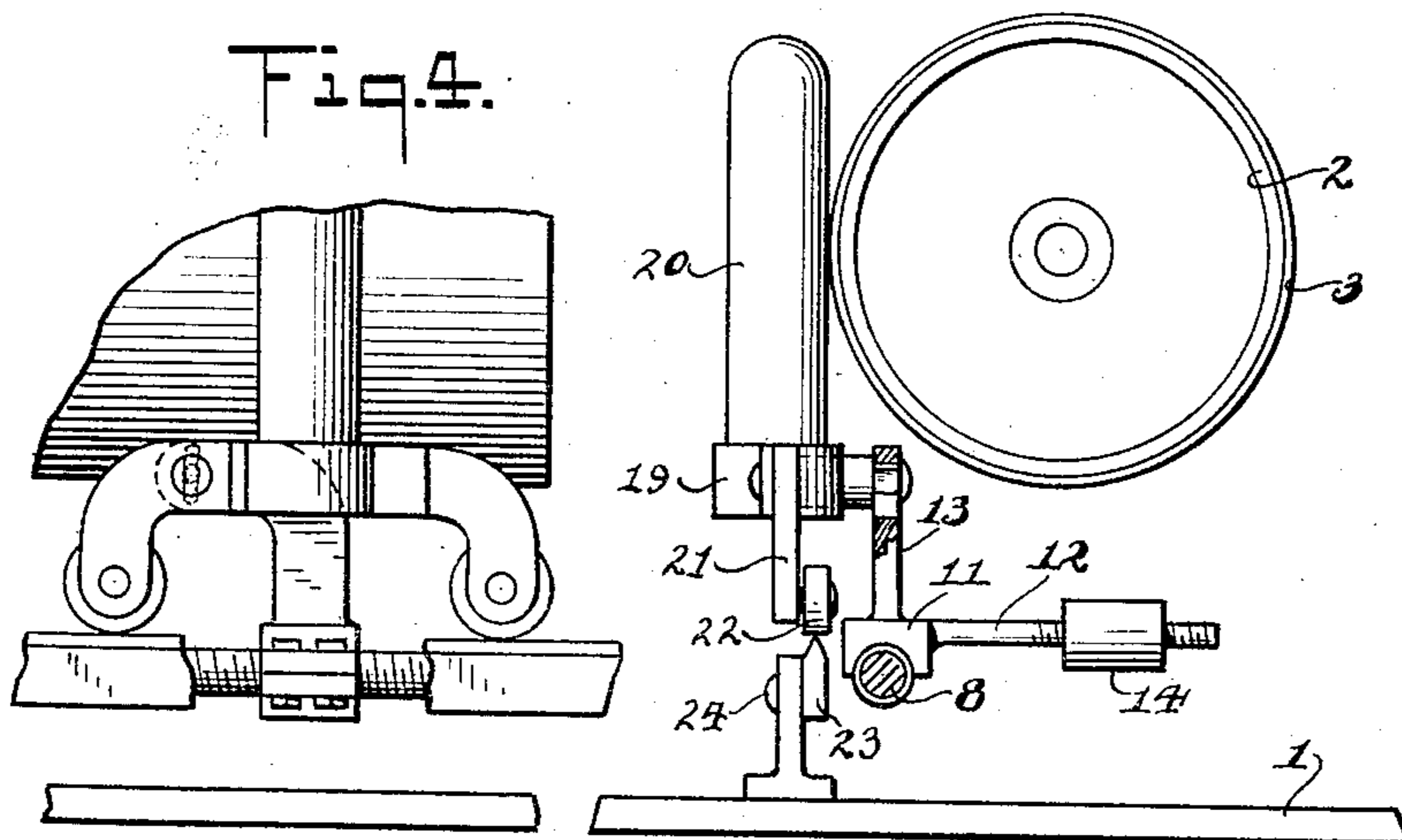
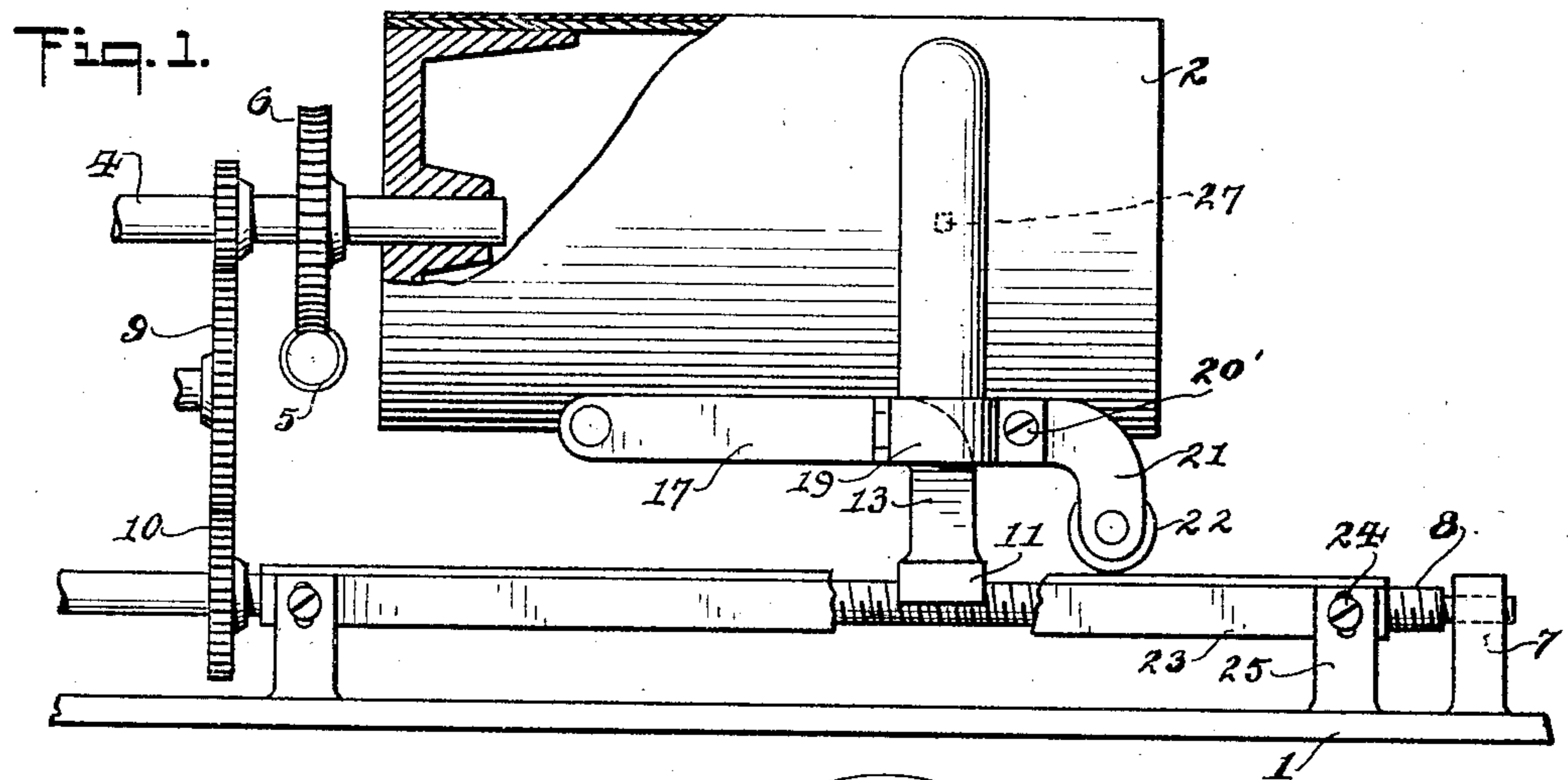
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# ELECTRIC TRANSMISSION OF VISUAL REPRESENTATIONS

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## ELECTRIC TRANSMISSION OF VISUAL REPRESENTATIONS

Application filed January 9, 1930. Serial No. 419,488.

This invention relates to electric transmission of graphic representations such as pictures, printed matter, writing or the like, and in general to any desired visual representation to be transmitted and reproduced at a distance.

The invention is in the nature of an improvement over the system and apparatus disclosed in United States Patent No. 1,659,200 granted to Charles Francis Jenkins February 14, 1928.

The principal object of the invention is to provide an improved apparatus for analyzing or integrating successive elemental areas of a graphic or other visual representation.

Another object of the invention is to provide a highly accurate and easily adjustable analyzing mechanism for picture transmission systems or other systems for transmitting and reproducing visual representations.

There is disclosed in United States Patent No. 1,659,200, apparatus comprising a rotatable cylinder carrying the matter to be transmitted or reproduced, and mounted externally to the cylinder and adapted to move parallel to the longitudinal axis of the cylinder is a housing containing a light sensitive cell or a reproducing lamp, depending upon whether the apparatus is transmitting or reproducing. As disclosed in said United States patent, the said housing is mounted to bear against the printed matter, picture or other representation.

It has been found however that due to unavoidable variations in the mechanism for transversing the housing relative to the picture drum that when the path of the light spot or the light opening which is traced around the drum is carefully examined, these variations appear in the form of a wavy line which is helically traced on the drum. Accordingly it is a principal feature of the present invention to provide means for mounting the light sensitive cell or reproducing light (in the case of a receiving mechanism) so that the path traced on the transmitting or receiving drum is a true helix without wavy line effects caused by mechanical imperfections or variations in the apparatus.

Another feature of the invention relates to a mechanism for transmitting and/or reproducing graphic representations or pictures comprising a rotatable drum and a carrier for a light sensitive cell or a reproducing light, together with means for causing longitudinal movement of said carrier with respect to the drum, the longitudinal movement of said carrier being unaffected by the variations in the traversing mechanism.

Another feature of the invention relates to a mechanism for transmitting pictures or other graphic representations employing a drum adapted to rotate about a horizontal axis, together with means for moving either a light cell or a reproducing light in a path parallel to the drum axis, and compensating means for accurately controlling the height of the cell or reproducing light with respect to the drum axis.

A further feature relates to the details of mounting a housing for a light sensitive cell or reproducing light whereby the housing has at least two degrees of freedom with respect to the usual rotating drum carrying the picture or other visual representation to be analyzed.

A still further feature relates to the details of organization and arrangement of elements which go to make up an efficient, easily adjusted and maintained system and apparatus for transmitting and/or reproducing graphic or other visual representations.

Referring to the drawing;

Fig. 1 represents a front view in elevation of a sufficient portion of picture transmission apparatus to enable the invention to be understood;

Fig. 2 is a right hand end view of the mechanism shown in Fig. 1;

Fig. 3 is a top plan view, with the picture drum removed showing the mechanism for traversing the cell or light housing relatively to the drum.

Fig. 4 shows a modified manner of supporting the housing for the light translating device.

Referring to the drawing the numeral 1 represents a suitable base upon which the apparatus is mounted. Numeral 2 repre-

sents a hollow drum preferably of glass or other transparent material, and preferably of the construction disclosed in United States Patent No. 1,659,200. To the drum 2 there is attached either on its outer periphery or adjacent its inner periphery a graphic representation such as a picture, writing or the like, desired to be transmitted, and represented in the drawing by the numeral 3. Drum 2 is affixed to a shaft 4 which is provided with suitable bearings (not shown) and is driven at the desired speed from a source of motive power (not shown) through the gears 5, 6. For a more detail description of the drum driving means reference may be had to said United States patent. Affixed to the base 1 is a pair of standards, one of which is shown in Fig. 1 and designated by the numeral 7. Each of these standards provides a bearing for the unthreaded end of a long screw member 8 which is adapted to be rotated at a relatively low speed from shaft 4, through a train of gears indicated schematically by the numerals 9 and 10. Co-operating with the threaded member 8 is a threaded clutch member 11 which has a horizontally extending arm 12 and a vertically extending arm 13. The end of arm 12 is threaded to receive the counterweight 14 for purposes hereinafter described. Arm 13 is provided with a horizontally extending portion 15 which extends parallel to the threaded member 8 as shown more clearly in Fig. 3. Likewise pivotally attached to the left hand end of the member 15 and separated therefrom by the spacing collar 16 is another arm 17. Arm 17, intermediate its ends is formed in a semi-circular offset portion 18. Hinged to the arm 17 is another semi-circular member 19 which cooperates with the portion 18 to form a holder for the long cylindrical housing 20. For the purpose of gripping the housing and maintaining it rigidly in position on arm 17 the portion 19 may be made of springy material and may be fastened to the arm 17 by means of a fastening screw 20'. Arm 17 at its right hand end terminates in a downwardly depending portion 21 which carries a roller 22. Roller 22 is adapted to ride on the edge of a horizontal bar 23 which is adjustably mounted by means of the screw 24, in a pair of uprights 25 on base 1. It will be understood of course, that the roller 22 is not absolutely necessary and the portion 21 may rest directly on the bar 23. However, when the roller 22 is employed, it may be made relatively wide compared with the thickness of bar 23, and if desired the said bar may be provided with a knife-edge portion 26. Inasmuch as the bar 23 is maintained at a fixed height both with respect to the base 1 and the axis of the drum 2, the housing 20 is likewise maintained at a fixed height from one end of its travel to the other, notwithstanding that the arm 13 may

vary in height due to the varying depths of threads in member 8, or to other inaccuracies which might cause the arm 13 to move out of a truly horizontal path. In other words vertical displacements of the arm 13, due to such mechanical inaccuracies are not transmitted to the housing 20 since the latter is loosely mounted on the arm 15 for vertical movement. On the other hand, however, the housing 20 is maintained at all times in close contact with the representation 3 due to the counterweight 14. In other words, the housing 20 moves as a unit with the arm 13 when the latter changes its angular position with respect to the threaded member 8. This change of angular position of the arm 13 will depend upon variations in the outer periphery of the drum 2 with the representation 3 wrapped thereon.

However, even though the drum periphery does possess irregularities in contour, nevertheless due to the arrangement disclosed, the housing 20 is maintained at all times in light contact with the drum periphery. When the mechanism is to be used as a transmitter there is mounted in a manner disclosed in United States Patent 1,659,200, within the drum a suitable light source, and there is mounted within the housing 20 a suitable light sensitive cell, the housing 20 being provided with a small aperture 27 where the housing rests against the drum. Consequently as the drum 20 and the member 8 are rotated, the housing 20 containing the light sensitive cell moves in an accurate horizontal path with relation to the drum axis, and consequently the representation 3 is exposed in successive elemental areas, determined by the aperture 27, said elemental areas succeeding each other in a truly helical path, and the variations in depth of the thread in member 8, or any variation of the member 8 from a true horizontal does not disturb or affect the said helical path, since the height of aperture 27 is fixed by the bar 23 as hereinabove described.

When the mechanism is to be used for receiving, a light sensitive film is wrapped around the drum 2 and a suitable light source energized by the incoming image currents is mounted within the housing 20. Consequently the light sensitive film is subjected to photographic or electric exposures in successive elemental areas tracing a true helical path around the drum.

Fig. 4 shows a modification wherein the arm supporting the housing 20 is provided with rollers at both ends.

It is clear from the foregoing that there is provided a mechanism wherein the housing 20 either for the light sensitive cell or the reproducing light is maintained at all times in engagement with the picture drum, and at the same time the said housing is maintained at a fixed height, regardless of variations in the traversing mechanism. In other words the

light sensitive cell or reproducing light is mounted for freedom of movement about two perpendicular axes, namely the axis on threaded member 8 and the pivot point 16.

While in the foregoing specific structures and arrangements have been disclosed, it will be understood that the invention is not limited thereto, as is desired instead of causing the housing 20 to move in a horizontal straight line the bar 23 may be adjusted to give a slanting motion to the housing, or any other suitable motion may be imparted to the housing, depending upon particular conditions of use.

What is claimed is:

1. In a mechanism of the class described the combination of a picture drum a threaded member, a follower pivotally mounted on said threaded member and adapted to move longitudinally with respect to the drum axis when said drum is rotated, a frame pivotally attached to said follower and means including a knife edge rail cooperating with said drum for maintaining said drum at a uniform distance from the drum axis regardless of irregularities in said threaded member.

2. In a mechanism of the class described the combination of a picture drum, a light translating device, a housing for said device mounted adjacent said drum and partially supported thereby, counterweight means for maintaining said housing in approximate contact with said drum, means for moving said housing longitudinally of said drum, and means including a knife edge rail for insuring that said housing moves parallel to the drum axis.

3. In a mechanism of the class described the combination of a rotatable picture drum, a threaded member extending longitudinally of said drum, a knife edge guide rail adjustably mounted with respect to said threaded member, a threaded follower engaging said threaded member, and a frame for supporting a light translating device, said frame being pivotally united to said follower and having a portion resting on said guide rail.

4. In a mechanism of the class described the combination of a rotatable picture frame, a threaded member extending parallel to the drum axis, a light translating device supported on said member for rotation thereabout, and for longitudinal movement thereon when said member is rotated, and means for preventing irregularities in the size, shape and disposition of said threaded member from affecting the longitudinal movement of said light translating device, the last mentioned means including a knife edge guide rail on which said light translating device is supported.

5. In a mechanism of the class described the combination of a rotatable picture drum, a threaded member extending longitudinally adjacent to said drum, a frame pivotally

mounted on said threaded member, a light translating device supported in said frame, a housing around said device, a counterweight for maintaining said housing in approximate contact with said drum, and means including a fixed knife edge rail for maintaining said housing at a uniform height with respect to the drum axis.

6. In a mechanism of the class described the combination of a picture drum adapted to rotate about a horizontal axis, a threaded member extending parallel to the drum axis, a fixed knife edge guide rail extending parallel to the drum axis, a light translating device supporting frame having a portion resting on said threaded member and another portion resting on said guide rail, said frame portions being pivotally united.

In testimony whereof I have hereunto set my hand on this 4th day of January, A. D., 1930.

CHARLES FRANCIS JENKINS.

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