J. P. THOMPSON.

ATTACHMENT FOR TRANSITS.

APPLICATION FILED NOV. 21, 1921.

1,432,309. Patented Oct. 17, 1922.

3 SHEETS—SHEET 1.

Fig. 1.

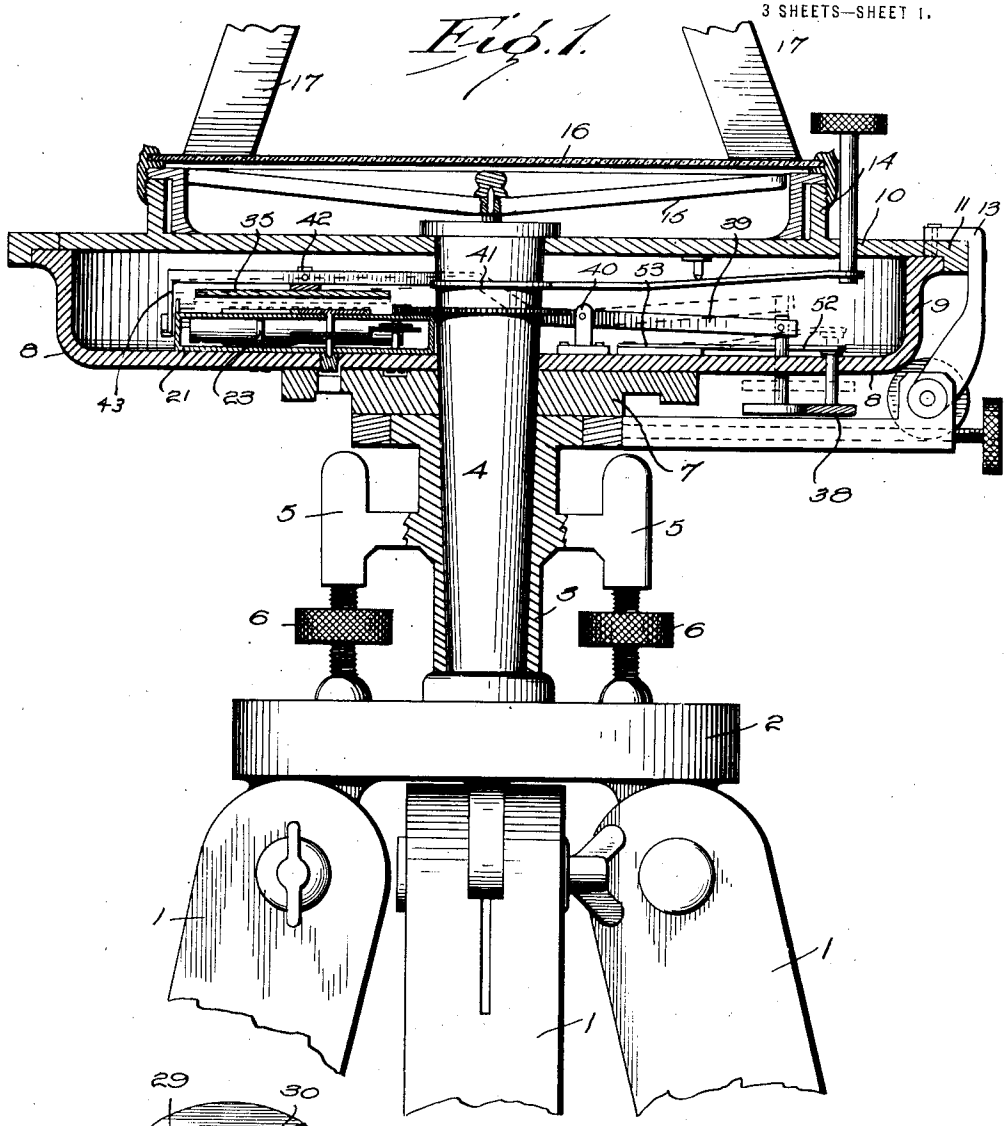
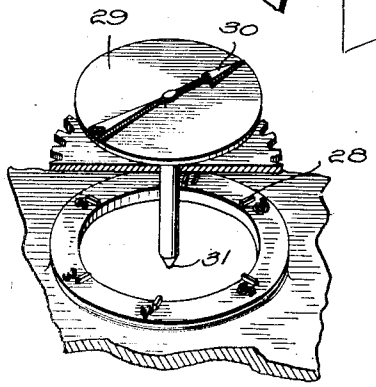


Fig. 3.



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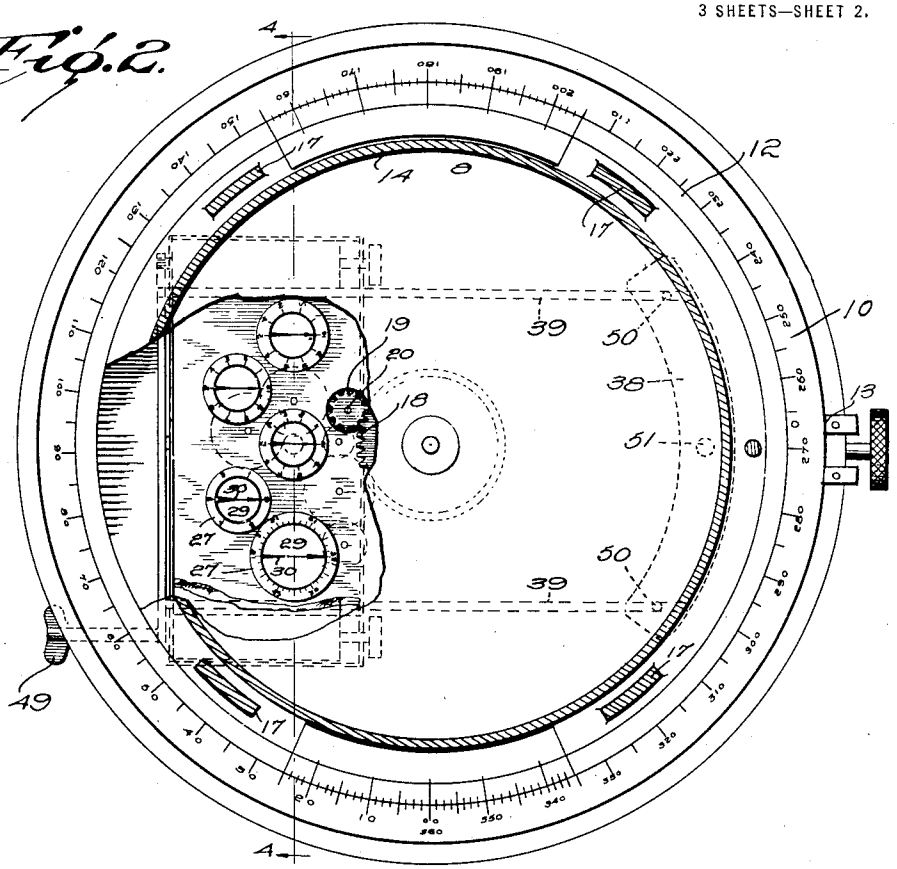
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3 SHEETS—SHEET 2.

Fig. 2.



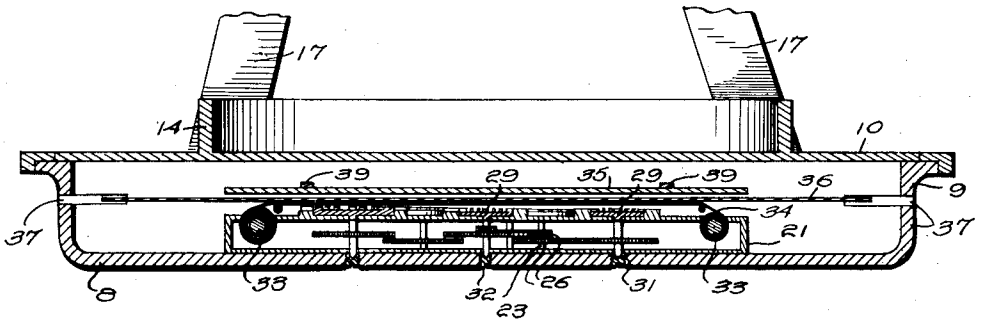


Fig. 4.

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3 SHEETS—SHEET 3.

Fig. 5.

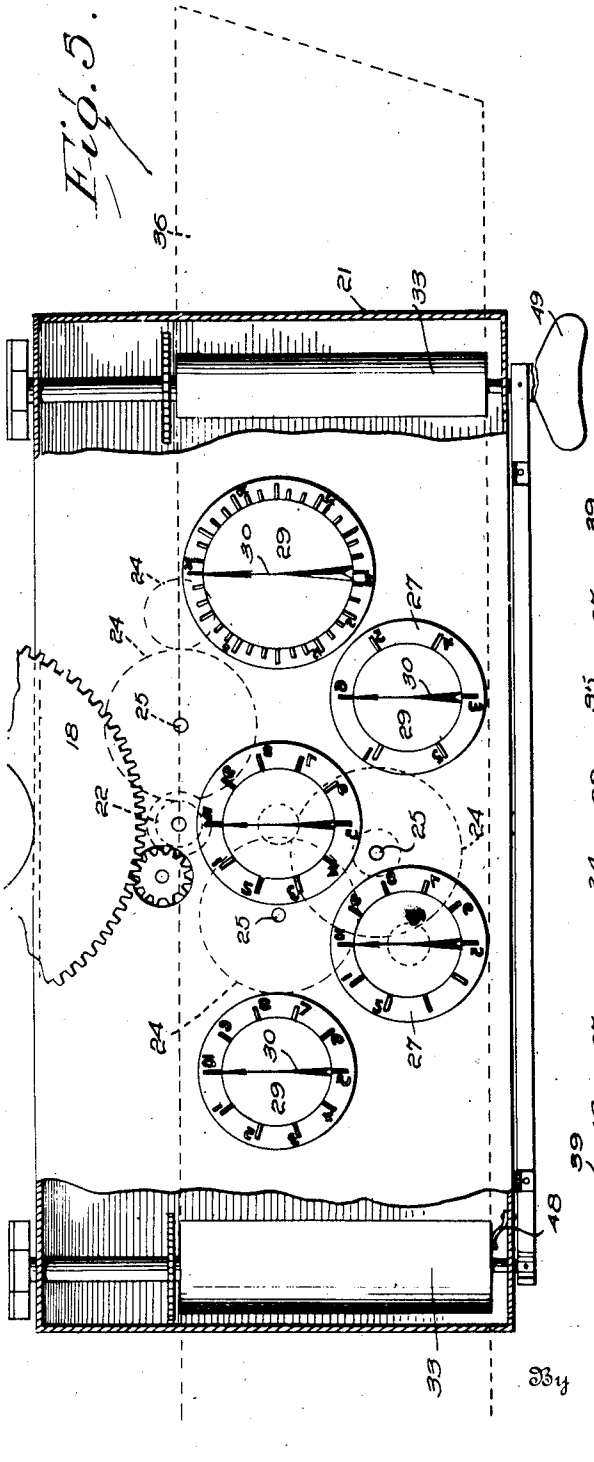
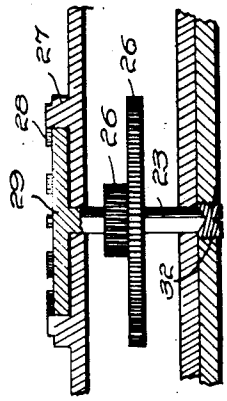


Fig. 6.

Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN PERRY THOMPSON, OF FAIRMONT, WEST VIRGINIA.

ATTACHMENT FOR TRANSITS.

Application filed November 21, 1921. Serial No. 516,828.

To all whom it may concern:

Be it known that I, JOHN PERRY THOMPSON, a citizen of the United States, residing at Fairmont, in the county of Marion and State of West Virginia, have invented certain new and useful Improvements in Attachments for Transits, of which the following is a specification.

This invention relates to attachments for transits, and similar instruments, and more particularly to mechanism for automatically registering the reading of the instrument.

In the present invention, I provide a plurality of dials adapted to give readings in degrees, minutes, and fractions of minutes, connected to the transit or compass by suitable gearing whereby the position or setting of the transit will be registered on the dials and may be transferred therefrom to a strip of paper or the like, eliminating the necessity of taking fine readings on the vernier of the instrument.

The dials may be provided with raised letters or figures, and a pointer, arrow or the like may be arranged to revolve with the compass, the pointer being raised flush with the figures of the dial and being adapted to print the reading on the record sheet.

The present invention further comprises recording means for transits and similar instruments adapted to be arranged in the base of a standard transit without the necessity of modifying the present types of construction.

In the accompanying drawings, I have shown one embodiment of the invention. In this showing:

Figure 1 is a vertical sectional view of a transit construction showing the invention applied,

Figure 2 is a plan view of a portion of a transit, parts being shown in section,

Figure 3 is a detail view of one of the dials and pointers,

Figure 4 is a sectional view on line 4—4 of Figure 2,

Figure 5 is a plan view of the registering and recording mechanism forming the subject matter of the present invention,

Figure 6 is a side elevation thereof, and,

Figure 7 is a vertical sectional view of a dial and pointer.

Referring to the drawings, the reference numeral 1 designates the legs or standards of a tripod of the usual construction provided with a collar 2 at the upper end. This collar is adapted to support a sleeve 3 in which the shaft 4 of the instrument is mounted. The sleeve is provided with projections 5, having openings therein for the reception of adjusting screws 6 whereby the table of the instrument is adjusted to a horizontal plane. A collar 7 is supported on the sleeve 3 and this collar forms a support for the bottom 8 of the base of the instrument. The base is provided with a peripheral flange 9 forming a box-like structure. The shaft projects to a point above the upper end of the flange, and a plate 10 is secured thereto and revolves with the shaft. The periphery of the plate rests upon the flange 9 and an angular ring 11 is arranged adjacent the plate. The plate is provided with the usual readings 12, adapted to be read in connection with an indicator 13, secured to the ring 11. The pate 10 is provided with an upstanding flange 14, forming a casing for the reception of a compass needle 15. The top of this compartment is covered by a plate 16 having supports 17 mounted thereon for a transit or other instrument. The parts heretofore described are of the usual construction, and form no part of the present invention except in the combination claimed.

A gear 18 is mounted on the shaft in the box formed by the base 8 and meshes with a gear or pinion 19, mounted on a stub shaft 20. The recording mechanism is arranged in a box 21 disposed in the base of the machine. The shaft 20 extends into this box and is provided with a gear (not shown) meshing with a gear 22. The pointers are mounted on shafts 23 supported in the walls of the box 21 and these shafts are connected to the shaft 22 by suitable gears 24 mounted on stub shafts 25. The pointer shafts are each provided with gears 26 meshing with the gears 24 and forming a train of gears adapted to revolve each of the dials at the proper speed to transfer fractions of minutes to the minute dial and minutes to the degree dial. One or more dials may also be provided for recording units of degrees, such as units of 10 and units of 100. The dials 27 are formed integral with the top of the box 21 and are provided with raised figures 28. Within the raised portion, there is provided a circular plate 29 having a raised pointer 30 arranged thereon. This plate is connected to the shaft 23. As shown, the lower end of the shaft is pointed, as at 31, and is adapted to be received in a bearing

member 32, which is provided with external screw-threads adapted to engage similar threads in an opening in the base 8. From the foregoing description, it will be apparent that the revolution of the shaft 4 in the setting of the transit or compass is transmitted to the pointers through the gearing disclosed and the pointers are revolved with respect to the dials.

Means are provided for recording the reading of the dials corresponding to the setting of the transit or compass. A pair of rolls 33 are arranged at opposite sides of the box 21 and these rolls are adapted to receive a carbon or inked ribbon 34. A platen 35 is arranged above the ribbon and a strip of paper 36 is adapted to pass between the ribbon and the platen. This strip of paper is fed through slots 37 arranged in the flange 9 at opposite sides of the instrument. The platen is adapted to move downwardly and force the ribbon into engagement with the raised figures 28 and raised pointers 30 to make an impression on the paper strip. After the transit has been set to obtain a reading, the platen is moved through the provision of a platen bar 38 arranged beneath the base of the instrument and adapted to be moved to the dotted line position shown in Figure 1 of the drawing by hand. The platen bar is connected to levers 38 arranged at each end thereof and these levers are pivotally mounted in suitable supports 40. As shown, the levers are provided with offset portions 41 and are adapted to be secured to brackets 42 arranged on the top of the platen. One of the levers extends beyond the bracket 42 and is provided with a down-turned end 43. A spring member 44 is mounted in a suitable bracket 45 on the end of the box 21 and this spring member bears against one of the roller shafts to form a bracket. The arm 43 is connected to the spring member adjacent its other end, and this end of the spring member is bent to form a pawl 46 adapted to engage a ratchet wheel 47 on the other roller shaft. This provides a step by step movement of the roller upon each depression of the platen. A spring 48 is arranged on the inner wall of the box and is adapted to engage the roller to limit its movement. The rollers may be turned by hand by means of a key 49 adapted to be inserted through an opening in the flange 9. Means are provided for returning the platen and platen bar to normal position for each operation. As shown, the levers 39 are connected to posts and are arranged adjacent the ends of the platen bar. A post 51 is arranged centrally thereof and extends through the base of the machine. The head of this post engages a leaf spring 52, secured to a suitable support 53.

In operation, a strip of paper is fed into the machine through one of the slots 37 and the transit or compass is set to obtain a reading. This revolves the pointers and sets them with relation to the dials at a reading corresponding to the position of the transit. The platen bar is then moved to the dotted line position, depressing the platen 35, paper strip 36, and carbon ribbon 34 on the figures 28 and the pointers 30, thus giving a reading. When the pressure of the operator's hand is released from the platen bar, the spring 52 returns it to normal position. The movement of levers 39 causes the offset end 43 of one of the levers to move downwardly and revolves the roller 33 through the provision of pawl and ratchet 46 and 47. The ribbon is thus fed with a step by step movement as the readings are recorded.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. The combination with a transit having a revolving support, of a plurality of indicators, each of said indicators comprising a stationary dial having raised indicia thereon and a revolving pointer arranged within and flush with said dial, connecting means between said pointers and said support to revolve the pointers when the support is revolved, and means for recording the indicia on said dials and the positions of said pointers.

2. The combination with a transit having a revolving support, of an indicator, said indicator comprising a stationary dial having raised indicia thereon and a revolving pointer arranged within and flush with the indicia on said dial, connecting means between said pointer and said support to revolve the pointer when the support is revolved, a ribbon arranged over said indicator and means for depressing a strip of paper and said ribbon against said indicator.

3. The combination with a transit having a revolving support, of a plurality of indicators, each of said indicators comprising a stationary dial having raised indicia thereon and a revolving pointer arranged within and flush with the indicia on said dial, connecting means between said pointer and said support to revolve said pointers when the support is revolved, a ribbon arranged over said indicators, and a movable platen arranged above said ribbon.

4. The combination with a transit having a revolving support, of a plurality of indicators, each of said indicators comprising

a stationary dial having raised indicia thereon and a revolving pointer arranged within and flush with the indicia on said dial, connecting means between said pointer and said support to revolve the pointers when the support is revolved, a ribbon arranged above said indicators, a movable platen arranged above said ribbon, and a pivoted lever connected to said platen.

5. The combination with a transit having a revolving support, of a plurality of indicators, each of said indicators comprising a stationary dial having raised indicia thereon and a revolving pointer arranged within and flush with the indicia on said dial, connecting means between said pointer and said support for revolving said pointers when the support is revolved, a ribbon arranged over said indicators, a movable platen arranged on said ribbon, a pivoted lever connected to said platen, and a spring secured to said lever to return the platen to normal position.

6. The combination with a transit having a revolving support, of a plurality of indicators, each of said indicators comprising a stationary dial having raised indicia thereon and a revolving pointer arranged within and flush with the indicia on said dial, connecting means between said pointers and said support to revolve said pointers when the support is revolved, a ribbon arranged over said indicators, a movable platen arranged above said ribbon, and means actuated by the movement of the platen to impart a step by step movement to said ribbon.

In testimony whereof I affix my signature in presence of two witnesses.

J. PERRY THOMPSON.

Witnesses:

O. J. FLEMING,

F. Y. HORNOR.