July 7, 1942. C. H. KIBBE 2,289,272

WORK ASSISTING MAGNIFYING APPARATUS

Filed Oct. 14, 1939 2 Sheets-Sheet 1

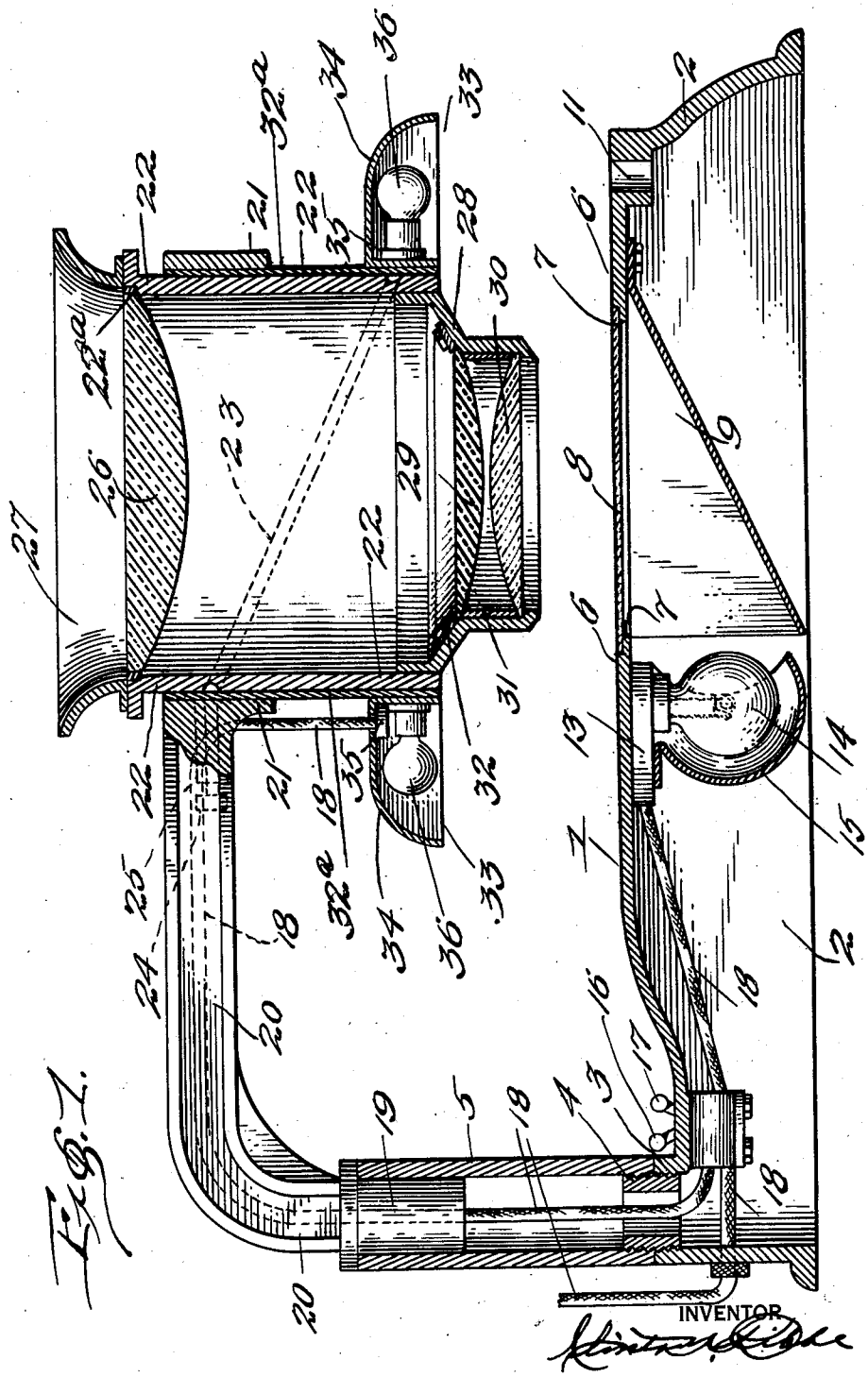

Fig. 1.

INVENTOR

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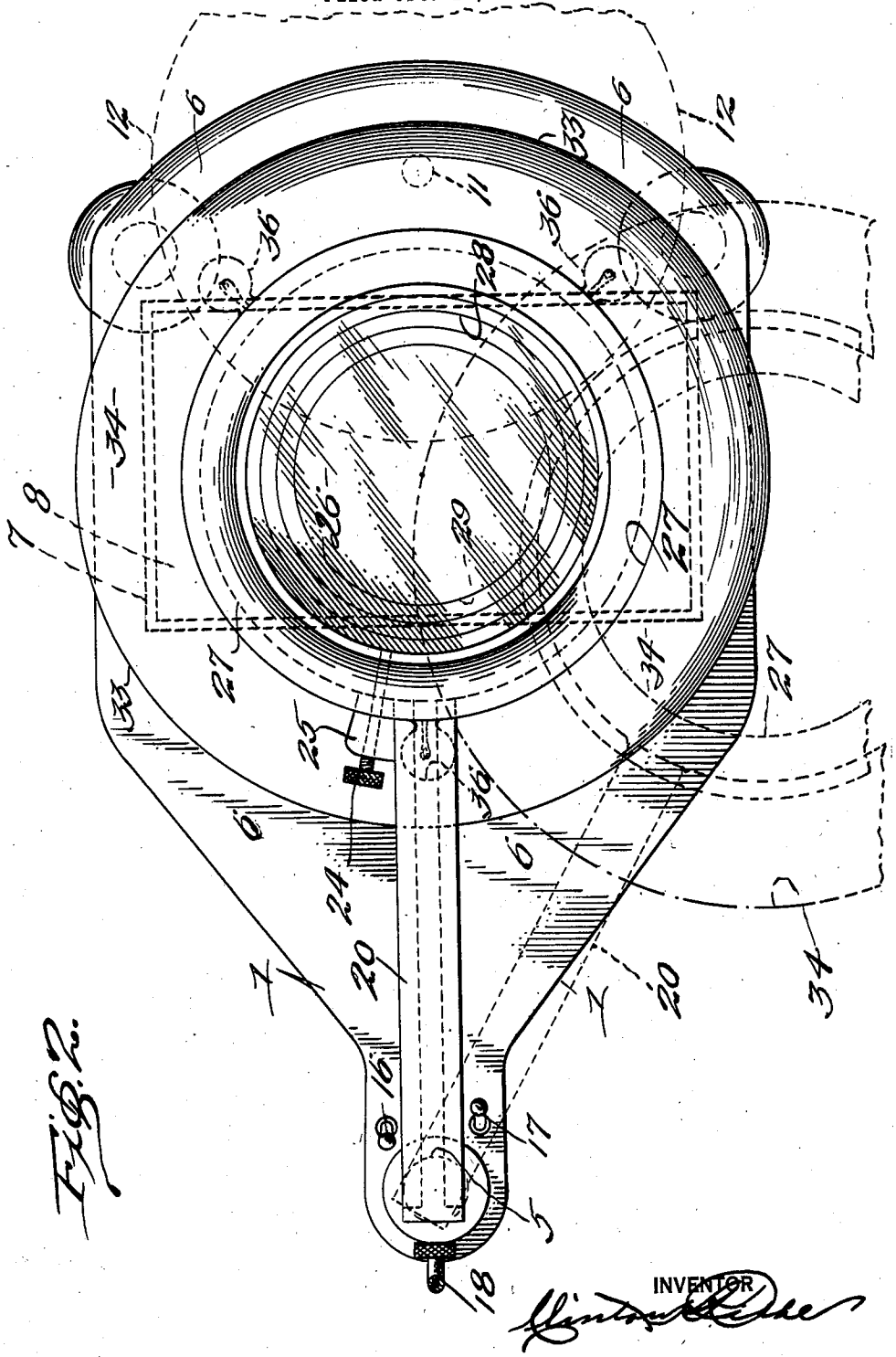

Fig. 2.

INVENTOR

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WORK ASSISTING MAGNIFYING APPARATUS

Clinton H. Kibbe, New York, N. Y.

Application October 14, 1939, Serial No. 299,427

1 Claim. (Cl. 88—39)

The invention relates to improvements in magnifying apparatus and has particular reference to a device provided with a multiple lens carrier, having associated therewith lighting means, supported within an adjustable standard, said lens carrier and lighting means being adjustable therein toward and away from a base upon which said standard is disposed said base forming a reception work table beneath said lens carrier and lighting means said table having formed therein an aperture and beneath which other lighting means are disposed together with electrical conduits and switch control means controlling both the adjustable lighting or top illuminator means and the bottom lighting means and latter thereof having associated therewith reflection means for deflecting the illumination therefrom upwardly through said aperture in order that the light rays from both the top illuminator and bottom illuminator will penetrate an object disposed on said table to produce a condition whereby both sides of an object may be discerned under high magnification, the lens in said carrier being of a diameter permitting observation therethrough with both eyes of an operator thereof, the adjustment of said lens carrier and illuminating means producing the means for determining the focal distances for all desired purposes.

The object of the invention resides in the providing of apparatus suitable as a detector of counterfeit and spurious specie and coin, for altered negotiable paper, for perfecting the conditions effecting the manufacture of all natures of small work, and for other and varied forms of fabricating all manner of objects and products requiring perfection in workmanship and accuracy.

In the following there is described the general embodiment of the invention, the features thereof being more fully defined hereinafter in the claim.

In the drawings Fig. 1 is a horizontal, sectional view of the apparatus and Fig. 2 is a plan elevation of the structure showing the supporting means carrying the lens carrier and upper illuminator in dotted lines to effect an uninterrupted work table and the relative position thereon of a rotary auxiliary work table for supporting and receiving various forms of objects requiring strict accuracy in both workmanship, fabrication and assembly.

Similar numerals of reference indicate similar and like parts throughout the views of the drawings forming part hereof. In the drawings 1 indicates a base or supporting member that may be of any suitable design and of any desired contour and may be made as a casting of any desirable metal and has formed therewith a side wall 2, to form a leg support therefor, and has formed therewith at the rear end a boss 3 arranged to receive a threaded nipple 4 to which a standard 5 is attached to form a supporting post. Said base 1 forms on its surface toward the front thereof a work table 6 and has formed therein an aperture 7 into which a glass plate 8 of any type is disposed and beneath said table 6 adjacent said apertures 7 a light spreading deflector 9 is placed. A hole 10 is drilled in the base at 11 into which an auxiliary revolving table 12 may be placed when desired. On the under surface of base 1 electrical sockets 13 are attached and carry electric lamps 14, housed by means of reflector heads 15 the object of which is to project the light rays from lamps 14 directly into deflector 9 to diffuse such light rays and project them upwardly through glass panel 8 to the object placed on said table 6.

At the rear neck portion of base 1 an electric control box is disposed having associated therewith and projecting to the outside of base 1 switches 16 and 17 arranged for the control of current supply to lamps 14 and a set of upper illuminating plans hereinafter described.

Wire conduits 18 connect the lighting elements with an ordinary house current supply source of either direct or alternating current form.

Standard 5 may be of any height and has mounted therein a swivel head 19 forming part of vertically and horizontally disposed supporting arm or bracket 20, the latter thereof having formed therewith an annular bearing 21 into which a primary lens cylinder 22 is adjustably mounted.

Lens carrier 22 has cut therein a spiral groove 23 and a thumb screw 24 is mounted in bearing head 21 at 25, the end of which rides in said groove 23 to permit of the adjustment of said lens carrier on a vertical plane with relation to work table 6.

Said carrier 22 is rimmed out at 22*a* and has mounted therein primary magnifying lens 26 the latter being held in place by means of visor 27, the object of which is to eliminate light refraction over the face of said lens 26, and said carrier cylinder 22 is internally threaded at its lower end thereof to receive a secondary lens carrier 28, having mounted therein magnifying lens 29 and 30, the relative positions of which are determined by spacer rings 31 and a spacer collar 32, said carrier 28 being similarly adjustable ver-

tically within primary lens carrier **22** with relation to table **6** and an object disposed thereon or said carrier may be fixed on said sleeve **32***a* after the proper focal lengths are determined.

Primary lens carrier **22** has mounted thereon a stationary sleeve **32***a* and fixed thereto an upper or top illuminator **33**, consisting of a reflector head **34**, and having mounted therein in contact sockets **35** a series of any number of electric lights **36** receiving their current supply through said conduit **18**.

It will be noted that the lens carriers **22** and **28** carry with them in their adjustment toward and away from table **6**, the illuminator means **33**, and that the battery of lenses **26** and **29** and **30** are both adjustable with relation to their powers of magnification with respect to table **6**, and that by reason of the varied adjustments obtainable, that a great number of results may be obtained by extremely slight movement of either or both of said elements and that focal distances will likewise obtain with respect to the various conditions found in the varying sights of the users of the apparatus.

The distances between lens centers may vary or they may be determined and set in order to obviate as much as possible an incorrect positioning of the magnifiers effecting thereby improper expanse of field, distortion and penetration.

It is obvious that the structure may be altered in divers ways and that both mechanical and electrical mechanism may also be changed to effect varying requirements without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent of the United States is:

A device of the character described comprising a supporting base member arranged as a work reception means, a movable supporting arm provided with a reception supporting chamber mounted on said first mentioned supporting base, a glass paneled aperture forming part of said work reception means illuminating means disposed in said supporting base, a lens carrier mounted in the reception chamber of said supporting arm, illuminating means mounted on said reception arm and circling said lens carrier, light reflector means for said illuminating means, means for adjusting said lens carrier and said redirected illuminating means on a vertical plane with relation to the horizontal plane of said supporting base, a primary and one or more secondary magnifying lenses mounted in said lens carrier and spaced apart with relation to one another and disposed on planes above and below the set plane of said illuminating means, a visor mounted on said lens carrier, one or more electrical circuits connecting said illuminating means, and manually controlled switches mounted on said supporting base arranged to energize the light sources in said illuminating means separately or simultaneously.

CLINTON H. KIBBE.