July 5, 1938. E. D. PHINNEY 2,122,918

COMMUNICATION SYSTEM

Filed June 29, 1935

FIG.1.

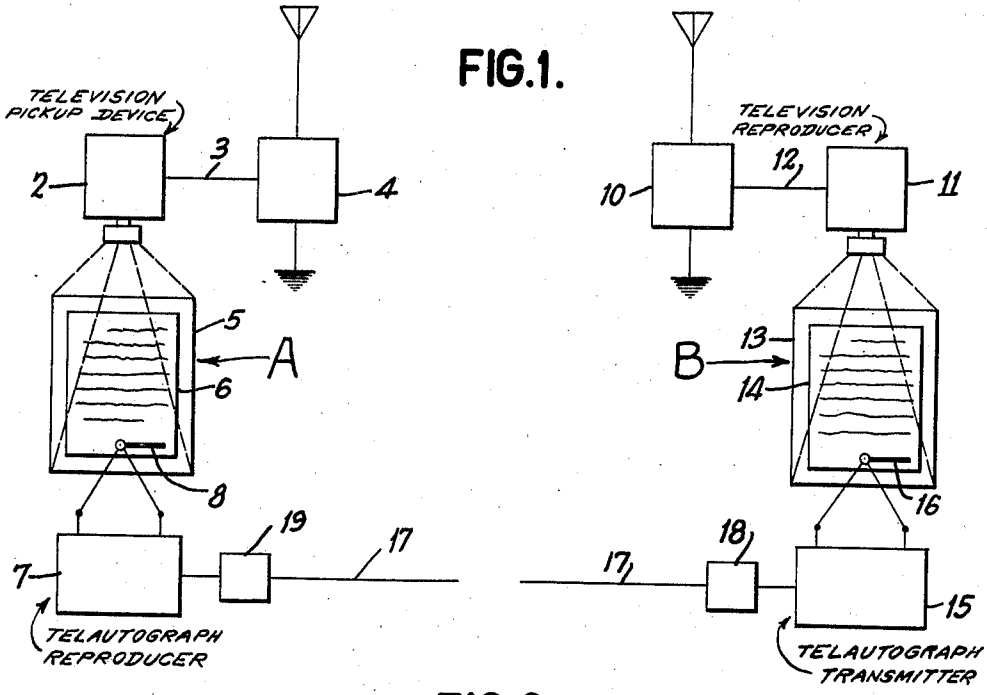
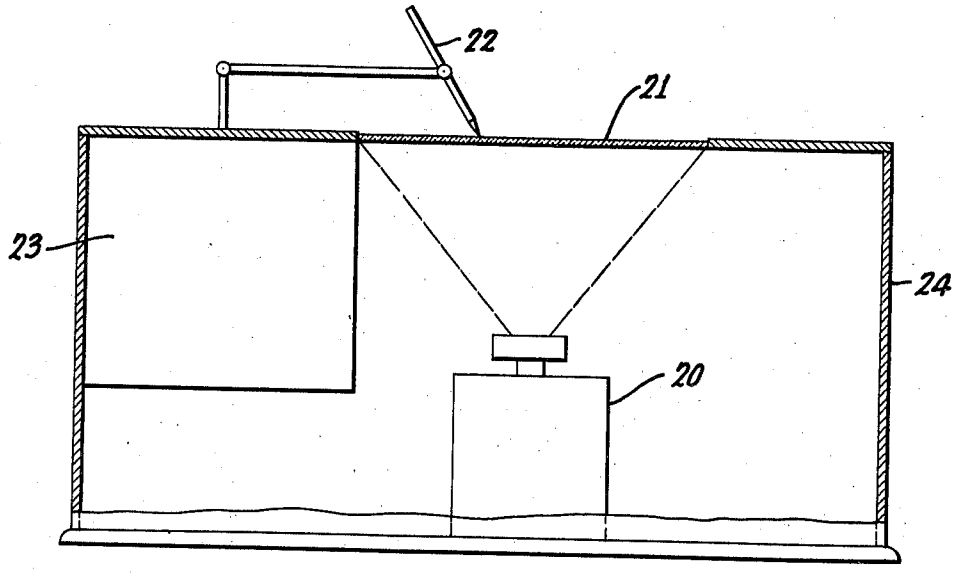


FIG.2.



INVENTOR

Edward D. Phinney

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COMMUNICATION SYSTEM

Edward D. Phinney, Mount Vernon, N. Y.

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6 Claims. (Cl. 178—19)

This invention relates to television systems and pertains more particularly to systems whereby documents may be read, corrected and signed at a distance by aid of electrical connections, either wire or radio.

It is an object of my invention to provide an electrical system whereby a document in one location may be reproduced as a visible image at a distance in a second location, by television means, and to provide cooperating and coordinated telautograph means so arranged that signatures, corrections or the like applied to the visible image at the second location are caused to appear at the proper corresponding places on the original document at the first location.

This invention solves the problem that frequently arises in the business and legal fields, of obtaining the signature or execution of papers prepared and/or physically present in one location, by a person at a second location distant from the first. The papers to be signed or corrected may be in one city and the signor in another city, or the separation may be merely a shorter distance, as that between two offices in the same city or even in the same building.

In accordance with my invention a paper to be signed is placed in the field of vision of a television pick-up device which, upon energization, transmits electrical signals to the distant point at which is located the prospective signor of the paper. At this distant point a television reproducing device is provided, which is adapted to project on a screen, either of the translucent type, such as ground glass, or of the reflecting type, such as a light colored fabric, the instantaneous image of the paper. A telautograph transmitter is likewise furnished at the said distant point and a telautograph reproducer at the first-mentioned point, the telautograph transmitter stylus covering part or all of the field of projection of the television reproducing screen, while the telautograph reproducing pen or other marking device covers a corresponding part, or all, of the field of vision encompased by the television pick-up device.

The television reproducer is connected to the television transmitter by suitable wire or radio means of any well known character, and the telautograph reproducer is connected to the telautograph transmitter by suitable wire or radio means of any well known type. The television signals may be transmitted by radio, either short or long wave, while the telautograph signals may be transmitted by connecting wire or cables. Since it is highly desirable to obtain the greatest accuracy in the reproduction of the handwriting or signature, the permanent record, wire channels are best used for this purpose. For the transmission of the television signals, radio means, preferably short wave, or concentric wire cables, suitably balanced electrically, are desirably used.

In any event the essential feature is that the television and telautograph mechanisms cover the same or similar parts of the same fields of view. To this end, if necessary, a plurality of telautograph mechanisms may be furnished so that if a large field of view must be covered, as in the case of large documents, legal papers, or the like, the entire sheet may always be in the view of the signor at the time of signature. The entire sheet being in view and coverable by the telautograph apparatus, fraud, which might follow exposure of only part of a sheet, will be prevented.

The above-mentioned and further objects and advantages of my invention and the manner of attaining them, are more fully set forth and explained in the following description taken in conjunction with the accompanying drawing.

In the drawing Fig. 1 is a diagrammatic illustration of a communication system embodying my invention, and:

Fig. 2 is a diagrammatic side-elevational view, partly in section, of a combined television receiving and telautograph transmitting apparatus.

Referring more particularly to the drawing, reference character A indicates generally a first station comprising a television pick-up device 2 which is connected by an electrical circuit means 3 with a radio transmitting apparatus indicated generally by reference numeral 4.

The field of vision of the television pick-up device is shown by numeral 5, and 6 indicates a document positioned in the said field of vision. Seven (7) refers to a telautograph reproducer having a pen 8 adapted to move over part or all of said field of vision.

A section station is shown at B, this station comprising a radio receiving apparatus referred to generally as 10, a television reproducer or projector 11 which is connected by electrical circuit means 12 with the said receiving apparatus. Thirteen (13) indicates the field of vision of the said reproducer, 14 an image on said field of view, 15 a telautograph transmitter having a stylus 16 adapted to move over the field of vision 13. The telautograph reproducer 7 is coupled to the telautograph transmitter 15 by electrical circuit means 17 having amplifiers or control devices 18 and 19.

Fig. 2 illustrates a desirable form of apparatus

for use at the television reproducing station B. This apparatus comprises a television reproducer or projector 20, which is adapted to cast the television image on a ground glass or other translucent screen 21, over the surface of which is adapted to move a stylus 22 of telautograph transmitter 23. The entire mechanism is enclosed in a case 24, which is preferably arranged as a writing desk for the use of the person manipulating the stylus 22. In Fig. 2 the elements 20, 21, 22, and 23, correspond to reproducer 11, field of vision 13, stylus 16, and transmitter 15, respectively, of Fig. 1.

In operating the system, which may be known as a telvisigraph system, for example to secure the signature of a paper or document located at station H by a person at station B, the document is placed in the field of vision 5 of television pick-up device 2, as shown at 6, and the system energized to cause a picture thereof to be reproduced at station B by television reproducer 11, as shown at 14. The prospective signor of the document grasps the stylus 16 of telautograph transmitter 15, and signs his name, corrects inaccuracies which he may find, or makes any other desired marks on the image of the document as reproduced by the television reproducer 11. The movements of stylus 16 cause corresponding movements of pen 8 of telautograph reproducer 7, in the usual way, with the result that the signatures, corrections, or other marks are placed on the original document 6 at the corresponding and proper location. The proper positioning of the signature or marks on the original paper is assured by correlation or coordination of the fields of view and action of the television and telautograph mechanisms at the two stations A and B. The telautograph reproducer 7 is so proportioned and arranged that the movement of pen 8 responsive to movement of stylus 16, is such that the position of the pen on the document 6 at any given time, corresponds exactly to the position of the stylus 16 on the image 14 of the said document, at the station B. The signature or other marks made by the telautograph reproducer are reproduced at station B similarly to the original document and will thus appear to the signor's view as he moves the stylus 16, therefore this stylus need make no direct mark at station B. By this arrangement the signor is assured that any signature or the like that he sees appear as a result of his actions is on the original document.

The television and telautograph instruments may be of any well known type and transmission of the necessary signals may be carried out by wire or long or short wave radio in any well known manner. As a rule it is preferable to use radio for transmitting the television signals on account of ease of transmission and faithfulness of reproduction, and wire connections for the telautograph signals, to assure accurate reproduction of the writings.

The television reproducing mechanism is preferably arranged as shown in Fig. 2, since by projecting the image against one side of a translucent screen and writing on the other side thereof assurance is had of freedom from shadows which would result from the writer's hand and stylus intercepting the beam of television image rays. This result may be obtained by the use of cathode ray tube television reproducers in which event the stylus could be arranged to move directly over the face of the tube itself without the use of a separate translucent screen. Or the screen could also be used with this type of reproducer, as well as with one of the lamp bank, scanning disc, or moving mirror or prism type.

This general type of communication system is adapted for many purposes. It may be used for effecting the signature of letters, contracts, checks and other documents located in one city by a person located in another city, as already suggested hereinbefore. It is also well adapted for use between different departments of banks, stores, railway companies and other business establishments where written records are kept or orders transmitted in writing.

One important advantage over the well known "picture transmission" type of system is that the original signed document is available at the remote point, rather than merely a chemically or photographically reproduced copy. A further advantage lies in the speed with which the desired signature may be obtained.

While I have described a particular embodiment of my invention for purposes of illustration, it will be understood that various modifications and adaptations thereof may be made within the spirit of the invention as set forth in the appended claims.

I claim:

1. A communication system comprising a first station and a second station, a television pick-up device at said first station, a television reproducing device at said second station, means for electrically interconnecting said television devices, a telautograph reproducer at said first station arranged to cover at least a part of the field of view of said pick-up device, a telautograph transmitter at said second station arranged to cover a corresponding part of the field of view reproduced by said television reproducer and means for electrically interconnecting said telautograph transmitter and reproducer.

2. A communication system comprising a television pick-up device located at a first station, a television reproducing device at a second station spaced from said first station, said device last-mentioned comprising a translucent screen and means for projecting visual images on one side of said screen, a telautograph reproducer at said first station arranged to cover a working area of the field of view of said television pick-up device, a telautograph transmitter at said second station having a stylus arranged to cooperate with the other side of said translucent screen and cover a working area on the field of view reproduced by said television reproducer, corresponding to that covered by said telautograph reproducer on the original field of view, and means for electrically interconnecting said television devices, and means for electrically interconnecting said telautograph devices.

3. A communication instrument comprising in combination a translucent screen, means for projecting a television image on one side of said screen and a telautograph transmitter having a stylus adapted to move over the other side of said screen.

4. A communication system comprising means for reproducing at a second point an image of a field of view located at a first point and separate means, responsive to movement of an object at said second point over said image for causing corresponding movements of another object at said first point in said field of view.

5. A communication system comprising a first station and a second station, a television pick-up device at said first station, a television reproduc-

ing device at said second station, means for electrically interconnecting said television devices, means at said first station for making a mark at a predetermined point in the field of view of said pick-up device, operating means at said second station to cause said means second mentioned to make a mark at said predetermined point and means for electrically interconnecting said means for making a mark and said operating means.

6. A communication system comprising electrical means for viewing a document from a remote point, electrical means for making a mark on said document at a predetermined point, operating means at said remote point for causing said means second mentioned to make a mark at said predetermined point and means for electrically interconnecting said means for making a mark and said operating means.

EDWARD D. PHINNEY.