Nov. 17, 1936. D. R. ZENNER ET AL 2,061,532

PEG BOARD

Filed July 26, 1935 2 Sheets-Sheet 1

FIG. 1.

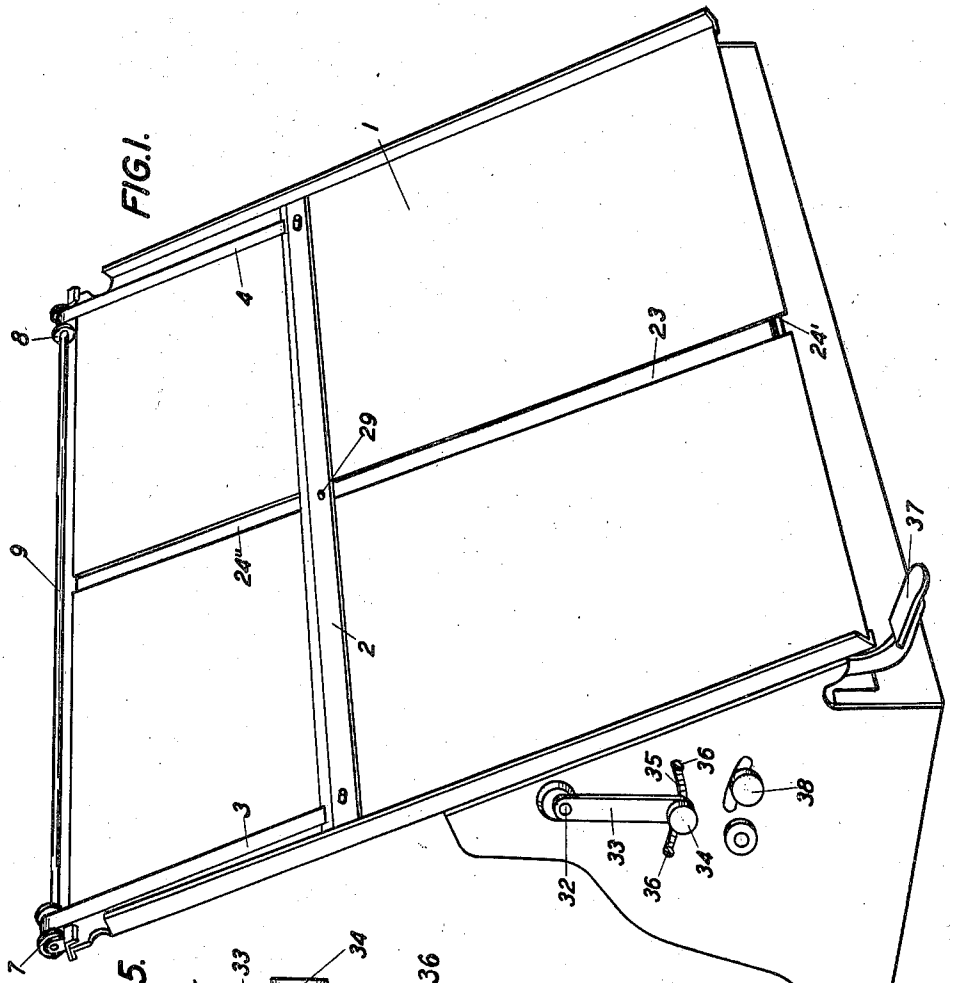


FIG. 5.

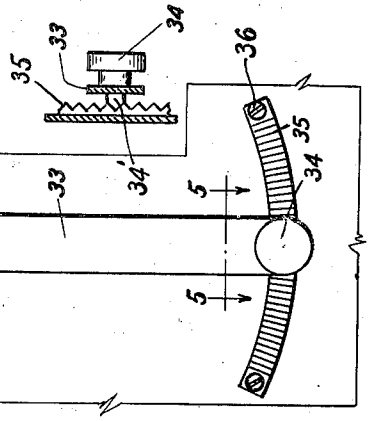


FIG. 4.

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FIG. 2.

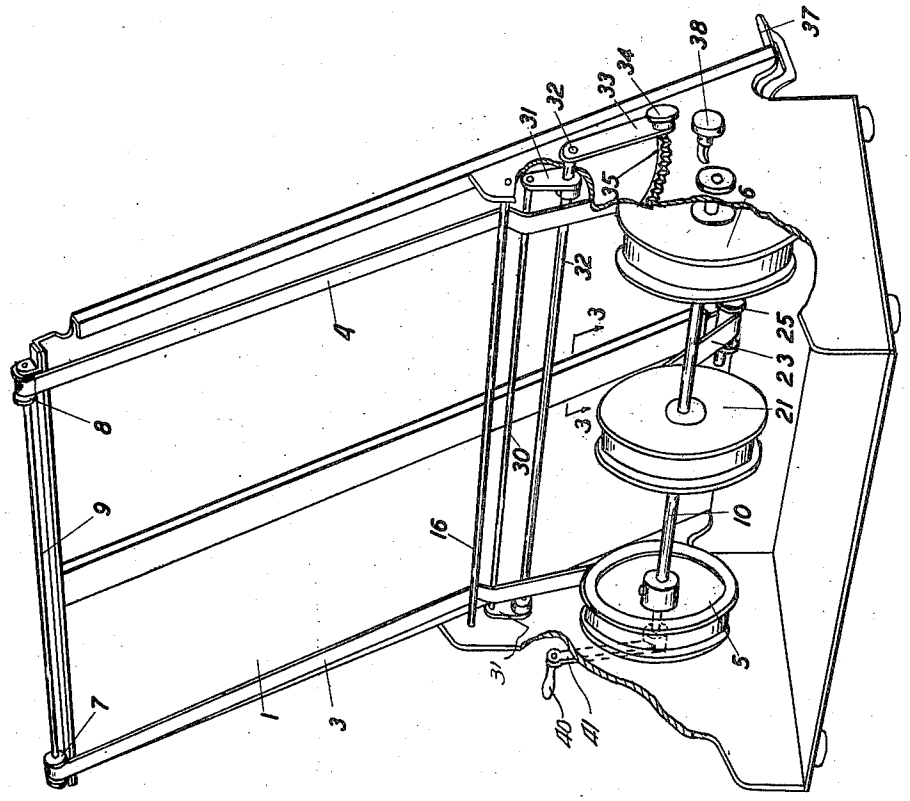
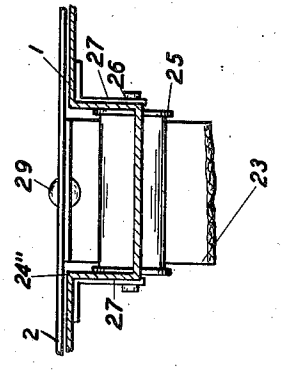


FIG. 3.



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UNITED STATES PATENT OFFICE

2,061,532

PEG BOARD

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Application July 26, 1935, Serial No. 33,195

10 Claims. (Cl. 120—29)

Our invention relates to peg boards which are employed to facilitate accounting methods. Such a board is described in United States Letters Patent of Robert L. Connor and Nelson S. Welk, issued March 15, 1934, No. 1,958,743, and more particularly our invention is an improvement on a device which is described in a copending application, Serial No. 10,131, filed March 9, 1935, by Donald A. Nevin and Nelson S. Welk.

In that application a peg board is described which consists of an inclined board adapted to receive a plurality of sheets of paper. The peg board is provided with a paper support termed a peg bar from which the sheets of paper are suspended, the sheets being arranged in shingled relation. These sheets contain data which is to be totalled by the aid of a line guide which extends across the entire board.

A cross bar is arranged to support the paper holding peg bars. The cross bar is suspended by flexible belts, one end of each of which is attached to a pulley mounted upon a shaft at the rear of the inclined board. This pulley, when rotated by mechanism provided for that purpose, raises the sheets of paper and retains them in parallel arrangement.

As described in that application the paper is lowered by gravity acting on the weight of the metal peg bars. We have found in practice that when the device is incorrectly operated or without the peg bar being attached, the cross bar does not possess sufficient weight for gravity to overcome the frictional resistance produced by contact against the surface of the supporting board. This sometimes causes the belts to buckle and come off of the pulleys. Inasmuch as these pulleys are located inside of the machine it renders the machine temporarily inoperative until the container is opened up and the belts again placed upon the pulleys.

Practice has also shown that it is possible to purposely or carelessly put the machine out of commission by holding the cross piece immovable or by throwing it back over the top of the inclined board and then operating the lowering mechanism.

Our invention has for its principal object to provide means for positively lowering the cross bar and metal peg bars supported thereby.

A further object of our invention is to make it impossible to throw the cross bar back over the top of the inclined board.

As described in the said application, a micrometer screw adjusting device is provided to permit the operator after spacing from one line to another to move the papers slightly upwardly or downwardly and thus to compensate for any variation in the spaces between the lines which may result from inaccuracy in ruling the lines or may be brought about by a shrinkage of the paper.

We have also found in practice that it is frequently desirable to back space the paper a distance of one or two spaces. To do this by the use of the micrometer screw adjusting device described in said application prevents rapid operation and entails the loss of a considerable amount of time.

We have also found in practice that it is desirable in some conditions, when the device has been set for double spacing, to single space at certain points in the operation of the device. When the device is operated by means of the micrometer adjusting device, or by changing the space control knob from double to single space position and back action or by depressing the operating lever half way, a great deal of time is consumed.

A further object of this invention is to provide an improved adjusting means which will not only permit close adjustment of the sheets of paper either upwardly or downwardly but will also permit rapid movement for a distance of three spaces or any part thereof in either direction as may be desired by the operator.

Our means of accomplishing the foregoing objects may be more readily understood by having reference to the accompanying drawings which are hereunto annexed and are a part of this specification, in which—

Fig. 1 is a perspective view taken from the front of the machine;

Fig. 2 is a perspective view taken from the rear of the machine;

Fig. 3 is a detail sectional view of an idler pulley and its supporting means, taken on line 3—3 of Fig. 2;

Fig. 4 is a fragmentary detail view of the belt adjusting mechanism;

Fig. 5 is a fragmentary detail view taken on the line 5—5 in Fig. 4 in the direction indicated by the arrows.

Similar reference numerals refer to similar parts throughout the entire description.

As shown in the drawings, the peg board 1 is provided with a cross bar 2 to the ends of which are secured belts 3 and 4. These belts are wound upon pulleys 5 and 6. The belts 3 and 4 pass over idler pulleys 7 and 8 mounted at the top of the peg board 1 on the shaft 9 mounted in suitable

bearings. The pulleys 5 and 6 are mounted upon a shaft 10, the rotation of which operates to wind up the belts 3 and 4 thus shifting the position of the cross bar 2.

Inasmuch as the operating mechanism for this device is described in application Serial No. 10,131, we shall not describe that part of the structure as the present invention does not pertain to it.

As shown in Fig. 2 of the drawings, we mount a third pulley 21 upon the operating shaft 10 to which we attach one end of a belt 23. This belt 23 is wound on the pulley 21 in an opposite direction from that with the belts 3 and 4 wound on the pulleys 5 and 6. The belt 23 is passed through a slot 24' provided at the center of the bottom edge of the peg board 1. An idler pulley 25, which is provided with flanges at each end, prevents the belt 23 from contacting the edges of the slot 24'. The idler pulley 25 rotates on a shaft 26 which is supported at either end by bearing brackets 27 clearly seen in Fig. 3. The brackets 27 may be permanently secured to the board 1 in any suitable or desired manner such as spot welding or by screws.

On the face of the peg board 1 we form a sunken channel 24'' which is adapted to receive belt 23 so as to permit the upper surface thereof to be below the surface of the board 1 and thus avoid any interference with the sheets of paper (not shown) which may be resting or moving on the board.

The opposite end of the belt 23, to that which is attached to the pulley 21, is fastened at the center of said bar, to the bottom of the cross bar 2 by a rivet or eyelet 29 or any other suitable or convenient manner. The length of the belt is such that it will effectually prevent the cross bar 2 from being thrown back over the top of the board 1.

It will be apparent to persons skilled in the art that the rotation of the shaft 10 in a direction opposite to that employed in elevating the cross bar 2 will wind the belt 23 on the pulley 21 thus operating to draw the cross bar 2 downwardly on the surface of the board 1, this motion being permitted by the unwinding of the belts 3 and 4 from the pulleys 5 and 6 since they are also attached to the shaft 10. It will be apparent from the foregoing that in this manner we provide a positive means for drawing the cross bar 2 downwardly instead of relying upon gravity for that purpose.

Our means for tightening and loosening the belts used for raising and lowering the paper (which is entirely independent of the ratchet wheel line spacing mechanism described and claimed in patent application, Serial No. 10,131) comprises a belt tightening and loosening rod 30 which is supported at both ends by an arm 31 which is rigidly attached to a rod 32. Means for adjusting the tension of the rod 30 on the belts comprises a link 33 which is rigidly attached to the end of the bar 32. A suitable handle or knob 34 being provided for convenience of operation. The knob 34 is provided with a stem 34' which passes through a hole in the arm 33 to which it is permanently attached by welding or in any other suitable or desired manner. The end of the stem 34' is chisel shaped and is adapted to frictionally engage the teeth of a gear segment 35. In practice we employ spring steel for the construction of the link 33 and the resilience of this metal furnishes sufficient spring tension to hold the point of the stem 34' in engagement with the teeth cut on a segment 35. The said segment 35 may be conveniently secured to the end wall of the casing by screws 36 or in any other suitable or convenient manner.

As described in the said application, pressure upon an operating handle 37 will rotate the pulleys 5 and 6 and wind the belts 3 and 4 thereon, thus raising the cross bar 2 and the sheets of paper (not shown), one or two spaces for each movement of said handle 37 depending upon the position of the space control knob 38.

The shaft 10, carrying the pulleys 5, 7 and 21 which are fixedly mounted thereon, is rotated by means of a crank 41 which is provided with a handle 40 for convenient rotation as fully described in said application Serial No. 10,131. By rotating the pulleys in one direction the cross bar 2 will be drawn upwardly, this being permitted by the unwinding of the belt 23 from the belt 21. By turning the crank 41 in the opposite direction the plates will be unwound from pulleys 5 and 6 and the belts 23 will be wound upon the pulley 21 thus drawing the cross bar 2 downwardly. Should it occur that the lines on the sheets of paper do not coincide with the line finder (not shown) a slight forward movement of knob 34 from one tooth to another of the said segment 35 will tighten the belts 3 and 4 due to their passing under the frame rod 16. This moves the arms 31 in an arc and will swing the rod 30 about the center of the shaft 32 and will, as a consequence raise the sheets of paper.

Obviously a reverse movement will cause the belt to loosen and permit the cross bar 2 and the peg bar and attached paper (not shown) to lower the mechanism. Adjustment of the knob 34 on the said segment 35 will tighten or loosen the belts 3 and 4 sufficiently to move the paper approximately three spaces. The center belt 23 is provided with sufficient slack to permit of this adjustment.

It has been found in practice that the amount of this adjustment may be increased or decreased merely by changing the length of the arms 31. It has also been found in practice that in operation and at the top line of the paper the adjusting knob 34 should be set approximately at a central position on the said segment 35 as clearly seen in Fig. 4 so as to afford approximately an equal adjustment in either direction.

Having described our invention what we regard as new and desire to secure by Letters Patent is:

1. The combination with a peg board, having an inclined board, a cross bar adapted to receive a plurality of loose leaf sheets of paper, and mechanism to positively move said cross bar upwardly on said peg board; of means actuated by said mechanism to positively move said bar downwardly on said board.

2. The combination with a peg board, having an inclined board, a cross bar adapted to receive a plurality of loose leaf sheets of paper and mechanism to positively move said cross bar, upwardly on said peg board; there being a channel in the said board, of a belt in said channel, means to secure one end of said belt to said cross bar, the other end being secured to a pulley, whereby the rotation of said pulley will impart positive downward movement to said cross bar.

3. The combination with a peg board, having an inclined board, a cross bar adapted to receive a plurality of loose leaf sheets of paper, a pair of pulleys, a belt on each pulley, one end of which is secured to said pulley, the other end being attached to said cross bar; of a third pulley, a belt

thereon wound in the opposite direction from the first named belts, said belt passing through a slot in said board adjacent its lower edge, there being a channel in said board in which said belt slides, and means to secure said belt to the cross bar adjacent its center.

4. The combination with a peg board, having an inclined board, a cross bar adapted to receive a plurality of loose leaf sheets of paper, said paper being ruled, a line finder on said board, and mechanism to positively move said cross bar, upwardly on said peg board; of means actuated by said mechanism to positively move said bar downwardly on said board, and means to shift said paper in relation to said line finder.

5. The combination with a peg board, having an inclined board, a cross bar adapted to receive a plurality of loose leaf sheets of paper, said paper being ruled, a line finder on said board; a pair of pulleys, a belt for each pulley, one end of which is secured to said pulley, the other end being attached to said cross bar; manually operable means to move said belts whereby the relation of the line finder may be varied, of a third pulley, a belt thereon wound in the opposite direction from the first named belts, said belt passing through a slot in said board adjacent its lower edge, there being a channel in said board in which said belt slides, and means to secure said belt to the cross bar adjacent its center.

6. The combination with a peg board, having an inclined board, a cross bar adapted to receive a plurality of loose leaf sheets of paper, said paper being ruled, a line finder on said board, a plurality of pulleys, a belt on each pulley, one end of which is secured to said pulley, the other end being attached to said cross bar; of manually operable means to move said belts whereby the relation of the line finder may be varied, a third pulley, a belt thereon wound in the opposite direction from the first named belts, said belt passing through a slot in said board adjacent its lower edge, there being a channel in said board in which said belt slides, means to secure said belt to the cross bar adjacent its center, and means to vary the amount of said movement.

7. The combination with a peg board, having an inclined board, a cross bar adapted to receive a plurality of loose leaf sheets of paper, a plurality of pulleys, a belt on each pulley, one end of which is secured to said pulley, the other end being attached to said cross bar; of a rod which engages said belts, and means to shift said rod whereby the relation of said paper to said line finder may be varied a predetermined distance.

8. The combination with a peg board, having an inclined board, a cross bar adapted to receive a plurality of loose leaf sheets of paper, a plurality of pulleys, a belt on each pulley, one end of which is secured to said pulley, the other end being attached to said cross bar; of a rod which engages said belts, means to shift said rod whereby the relation of said paper to said line finder may be varied a predetermined distance, and means to vary the amount of said movement.

9. The combination with a peg board, having an inclined board, a cross bar adapted to receive a plurality of loose leaf sheets of paper, a plurality of pulleys, a belt on each pulley, one end of which is secured to said pulley, the other end being attached to said cross bar; of a rod which engages said belts, arms attached to said rod, a link to shift the position of said arms a predetermined distance.

10. The combination with a peg board, having an inclined board, a cross bar adapted to receive a plurality of loose leaf sheets of paper, a plurality of pulleys, a belt on each pulley, one end of which is secured to said pulley, the other end being attached to said cross bar; of a rod which engages said belts, arms attached to said rod, a link to shift the position of said arms a predetermined distance, a toothed segment, and a pin carried by said link which engages said segment to hold the link in adjusted position.

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