June 30, 1931. H. S. MARTIN 1,812,600

STOCK QUOTATION INDICATOR

Filed April 12, 1930

Fig. 1.

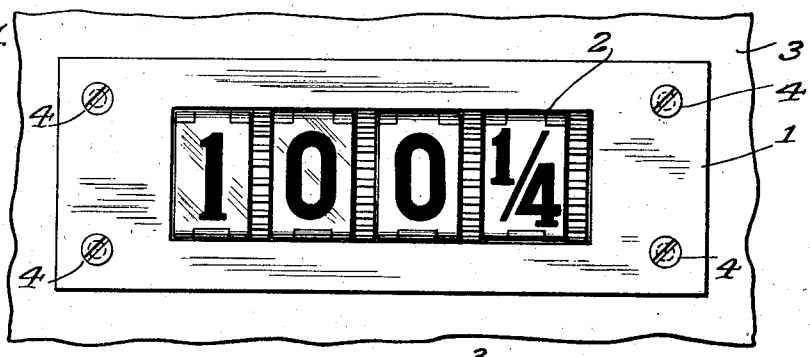


Fig. 2.

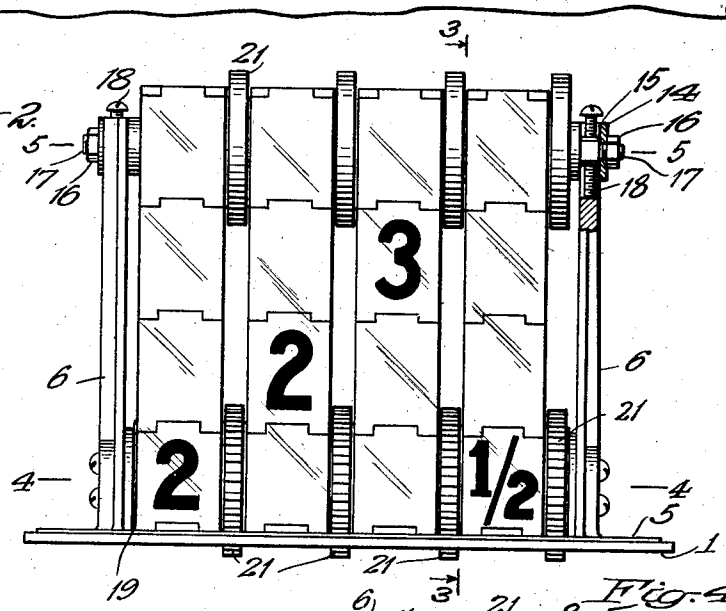


Fig. 3.

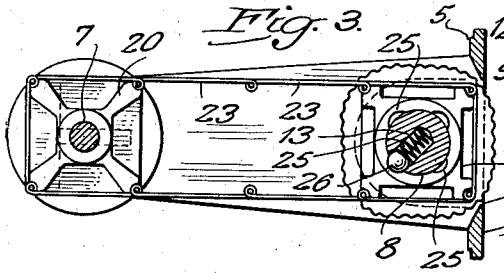


Fig. 4.

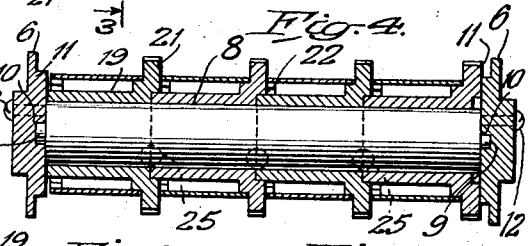


Fig. 5.

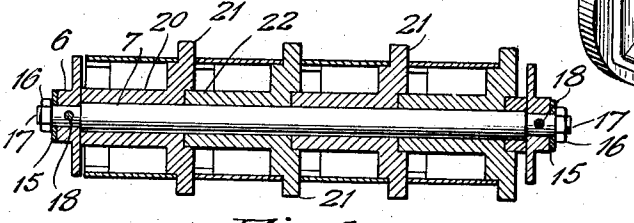


Fig. 6.

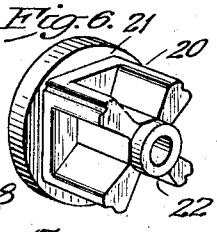
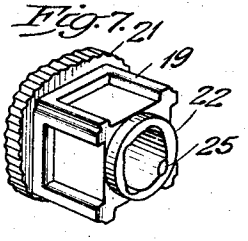


Fig. 7.



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UNITED STATES PATENT OFFICE

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STOCK QUOTATION INDICATOR

Application filed April 12, 1930. Serial No. 443,697.

My invention relates to indicators, and in particular to devices for indicating the sales prices of securities commonly referred to as "stock quotations."

Frequently, a multiplicity of indicators of the type mentioned are grouped together on a common board such as the usual trading posts of stock exchanges and the display boards of stock trading houses to indicate the prevalent quotations of the more popular stocks, a separate indicator being used for each stock or article quoted. Whenever a transaction in a particular item is effected on the floor of the stock exchange, the sale price involved is first indicated on the trading post and is then transmitted by means of a ticker system to those places in which quotation boards are located. The sale price of the particular item sold at the exchange indicated by the ticker is recorded manually on an indicator of the quotation boards. Such boards are, of course, limited to a height which permits the uppermost indicator to be readily accessible for manual manipulation. Consequently, if the current quotations of a large number of stocks are to be displayed, it is essential that the indicators be compact so that each indicator occupies a minimum of space on the board. It is also essential that the quotation on the indicator be clearly visible from any point in the room.

In accordance with my invention I provide an indicator which is compact and requires a minimum of space on a trading post or quotation board. The indicator of my invention utilizes polygonal pulleys disposed in aligned pairs, each pair of pulleys being independently operable and having a belt composed of linked sections disposed thereover. The linked sections of the belt correspond in length to the polygonal faces of the pulleys and the characters to be displayed are formed on the outer surfaces of these sections.

An advantage of my construction is the fact that the characters to be displayed are brought flush with the front face of the indicator.

Specifically, I provide an indicator which comprises a face plate having an elongated opening therein. Extending rearwardly from the face plate there are two bracket arms on opposite sides of the opening in the face plate. The bracket arms support two shafts parallel to the face plate, one immediately back of the face plate and the other spaced rearwardly therefrom. A plurality of polygonal pulleys are loosely mounted on the front shaft and a corresponding number of like pulleys are loosely mounted on the rear shaft. The front and rear pulleys are disposed in aligned pairs and each front pulley has a continuous flange at one end projecting through the opening in the face plate and available for manipulating the pulley. With each front pulley there is associated positioning and locking means for positioning and locking the pulley with one face thereof parallel to the plane of the face plate. Disposed over each pair of pulleys there is a belt composed of linked sections, the linked sections corresponding in length to the polygonal faces of the pulleys and having the characters to be displayed formed on the outer surface thereof.

Other advantages of the indicator of my invention will be apparent from the following particular description of one embodiment thereof taken in connection with the accompanying drawings in which:

Fig. 1 is a front elevation of an indicator embodying my invention;

Fig. 2 is a plan of the same;

Fig. 3 is a longitudinal sectional elevation taken on the line 3—3 of Fig. 2;

Fig. 4 is a transverse sectional elevation taken on the line 4—4 of Fig. 2;

Fig. 5 is a transverse sectional elevation taken on the line 5—5 of Fig. 2; and

Figs. 6 and 7 are perspectives of a rear and front pulley respectively.

In the embodiment illustrated, the indicator consists of a plate 1 having an elongated opening 2 therein. The plate may be secured to a board 3 by machine screws 4. On the rear surface of the face plate, there is formed a shoulder 5. The shoulder 5 abuts against the board 3 and provides a

space between the rear surface of the face plate and the board. A plurality of indicators of this type are generally secured to a quotation board, and the space provided by the shoulders 5 is such that a card on which the particular stock quoted by an indicator is designated, may be inserted between two succeeding indicators. Formed integral with the face plate, there are two rearwardly extending bracket arms 6 on opposite sides of the opening 2 in the face plate. The bracket arms 6 support shafts 7 and 8 parallel to the face plate, the shaft 8 being immediately in back of the face plate and the shaft 7 being spaced rearwardly therefrom. The shaft 8 has projections 9 formed on each end thereof which are received in grooves 10 cut in bosses 11 formed on the forward end of the bracket arms 6. The shaft is secured in position by machine screws 12 extending through the bracket arm 6 and threaded into the ends of the shaft 8. Intermediate the ends of the shafts, a plurality of transverse holes 13 are bored in the shaft, the purpose of which will hereinafter appear.

The ends of the shaft 7 are received in bushings 14 which are received in slots cut in the ends of the bracket arms 6. The bushings 14 are provided with parallel flanges between which the bracket arms are received. The outer flanges 15 of these bushings are loosely mounted on the bushings and may be forced toward the inner flange by means of nuts 16 threaded on projections 17. Thus, the bushings may be clamped securely in place on the bracket arms. Adjusting screws 18 are provided which extend through the bushings and abut against the bottom of the slots in the bracket arms. The adjusting screws are threaded in the bushings so that rotation of the adjusting screws changes the distance between the center line of the shaft and the bottom of the slot in the bracket arm. In this way, the distance between the shafts 7 and 8 may be varied.

A plurality of square pulleys 19 are mounted on the shaft 8 and a corresponding number of like pulleys 20 are loosely mounted on the rear shaft 7. The front and rear pulleys are disposed in aligned pairs. Each pulley is provided with a continuous flange 21 at one end and a projection 22 of reduced diameter at the other end which projection is received in a complementary depression in the end of the adjacent pulley. The flanges on the front pulleys extend through the opening in the face plate and are available for manipulating the pulley, the edge of the flange being knurled for this purpose.

Disposed over each pair of pulleys, there is a belt composed of linked sections 23. Each section is bent at each end to form a hinge and is pivotally secured to adjacent sections. The linked sections of the belt correspond in length to the polygonal faces of the pulleys and have formed on the outer surface thereof the characters to be displayed. The belts are spaced from each other and maintained in position by the flanges on the pulleys. The front pulleys are so positioned that the link section disposed over the front face of the pulley is substantially flush with the front surface of the face plate 1. The width of the link sections is such that together with the flanges on the front pulleys they completely fill the openings in the face plate.

The inner surfaces of the front pulleys have formed at the end of the projections 22 spherical depressions 24, one for each face of the pulley. These depressions in the inner surface of the pulley lie, in the assembled structure, in the plane of the transverse holes 13 bored in the shaft 8. Within each opening 13 there is a convolute spring 25 and a metal ball 26. The convolute spring acts between the base of the bore 13 and the ball 26 to force the ball out of the bore and into the depressions in the inner surface of the pulley disposed thereover. The balls are so positioned that they are aligned with a depression in a pulley when a face of the pulley is parallel to the plane of the face plate. The cooperation of the balls and the depressions in the pulleys serve as positioning and locking means to position and lock the pulleys with one face thereof parallel to the plane of the face plate.

In the embodiment illustrated, the pulleys are shown as being square in cross-section. The square pulleys are particularly suitable to indicating numerals as they permit the use of a belt containing exactly ten link sections. Of course, in indicating characters other than numerals, it may be desirable to use pulleys having a greater or lesser number of faces.

It is obvious that various changes may be made in the embodiment illustrated in the drawings and above particularly described within the principle and scope of my invention as expressed in the appended claims.

I claim:

1. An indicator for quotation of stocks and the like comprising a face plate having an elongated opening therein, two bracket arms extending rearwardly from the face plate on opposite sides of the opening, two shafts spanning the bracket arms parallel to the face plate, one immediately back of the face plate and the other spaced rearwardly therefrom, a plurality of polygonal pulleys loosely mounted on the front shaft and a corresponding number of like pulleys loosely mounted on the rear shaft, the front and rear pulleys being disposed in aligned pairs and each front pulley having a con-

tinuous flange at one end projecting through the opening in the face plate and available for manipulating the pulley, and a belt composed of linked sections disposed over each pair of pulleys and spaced from the adjacent belt by said flange, the linked sections corresponding in length to the polygonal faces of the pulleys.

2. An indicator for quotation of stocks and the like comprising a face plate having an elongated opening therein and a shoulder formed on the rear surface thereof around the opening, two bracket arms extending rearwardly from the face plate on opposite sides of the opening, two shafts spanning the bracket arms parallel to the face plate, one immediately back of the face plate and the other spaced rearwardly therefrom, a plurality of polygonal pulleys loosely mounted on the front shaft and a corresponding number of pulleys loosely mounted on the rear shaft, the front and rear pulleys being disposed in aligned pairs and each front pulley having a continuous flange at one end projecting through the opening in the face plate and available for manipulating the pulley, and a belt composed of linked sections disposed over each pair of pulleys and spaced from the adjacent belt by said flange, the linked sections corresponding in length to the polygonal faces of the pulleys, and the shaft immediately behind the face plate being so positioned that the linked sections over the front faces of the pulleys on the shaft are substantially flush with the forward surface of the face plate.

3. An indicator for quotation of stocks and the like comprising a face plate having an elongated opening therein, two bracket arms extending rearwardly from the face plate on opposite sides of the opening, two shafts spanning the bracket arms parallel to the face plate, one immediately back of the face plate and the other spaced rearwardly therefrom, a plurality of square pulleys loosely mounted on the front shaft and a corresponding number of pulleys loosely mounted on the rear shaft, the front and rear pulleys being disposed in aligned pairs and each front pulley having a continuous flange at one end projecting through the opening in the face plate and available for manipulating the pulley, and a belt composed of linked sections disposed over each pair of pulleys and spaced from the adjacent belt by said flange, the linked sections corresponding in length to the faces of the pulleys, and the shaft immediately behind the face plate being so positioned that the linked sections over the front faces of the pulleys are substantially flush with the forward surface of the face plate.

4. An indicator for quotation of stocks and the like comprising a face plate having an elongated opening therein, two bracket arms extending rearwardly from the face plate on opposite sides of the opening, two shafts spanning the bracket arms parallel to the face plate, one immediately back of the face plate and the other spaced rearwardly therefrom, a plurality of square pulleys loosely mounted on the front shaft and a corresponding number of like pulleys loosely mounted on the rear shaft, the front and rear pulleys being disposed in aligned pairs and each front pulley having a continuous flange at one end projecting through the opening in the face plate and available for manipulating the pulley, and a belt composed of linked sections disposed over each pair of pulleys and spaced from the adjacent belt by said flange, the linked sections corresponding in length to the square faces of the pulleys, and the distance between the rear edge of the forward pulley and the front edge of the rear pulley of a pair being equal in length to two linked sections.

5. An indicator for quotation of stocks and the like comprising a face plate having an elongated opening therein, two bracket arms extending rearwardly from the face plate on opposite sides of the opening, two shafts spanning the bracket arms parallel to the face plate, one immediately back of the face plate and the other spaced rearwardly therefrom, a plurality of pulleys loosely mounted on the front shaft and a corresponding number of like pulleys loosely mounted on the rear shaft, the front and rear pulleys being disposed in aligned pairs and each front pulley having a continuous flange at one end projecting through the opening in the face plate and available for manipulating the pulley, and a belt composed of linked sections disposed over each pair of pulleys and spaced from the adjacent belt by said flange, the linked sections corresponding in length to the faces of the pulleys, and positioning and locking means for positioning and locking the forward pulleys with one face thereof parallel to the face plate.

In witness whereof, I hereunto subscribe my signature.

HARRISON S. MARTIN.