No. 784,272. PATENTED MAR. 7, 1905.

A. F. NAGLE.

TABULAR SHEET HOLDER.

APPLICATION FILED APR. 7, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

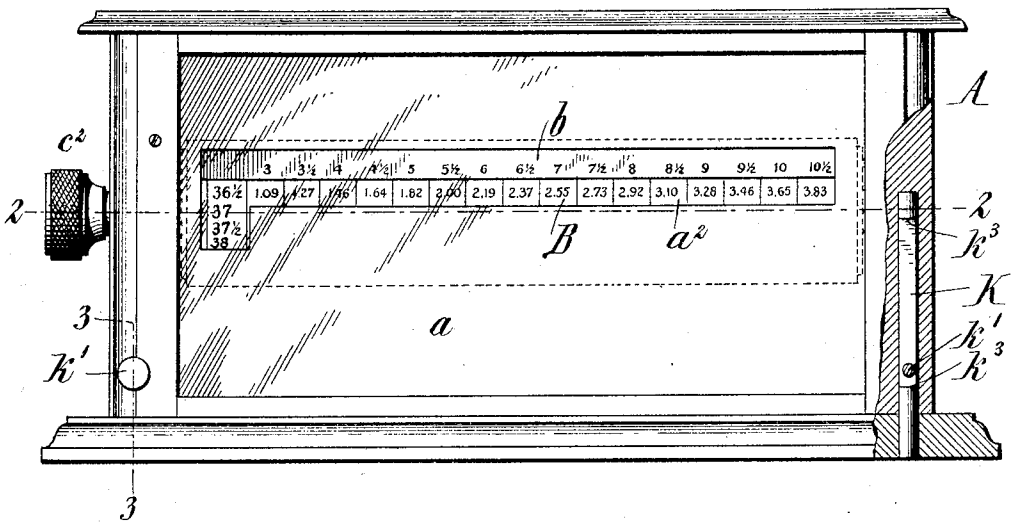


Fig. 2.

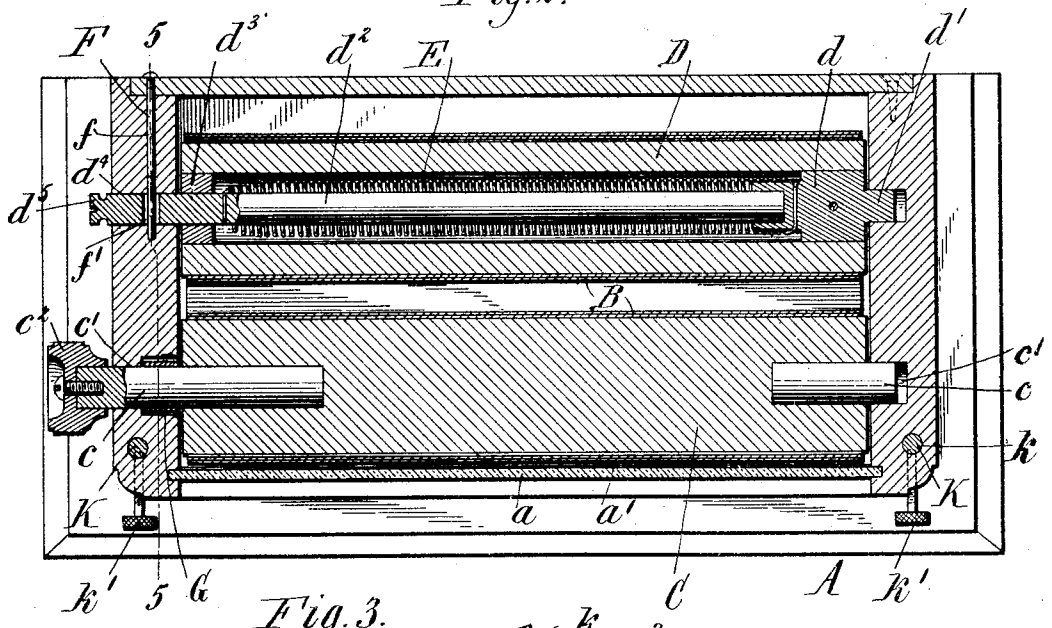
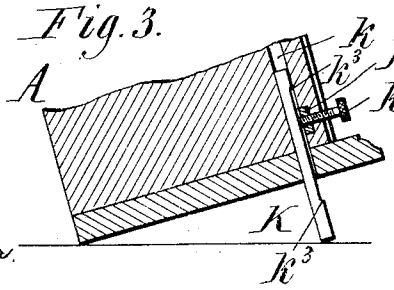


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

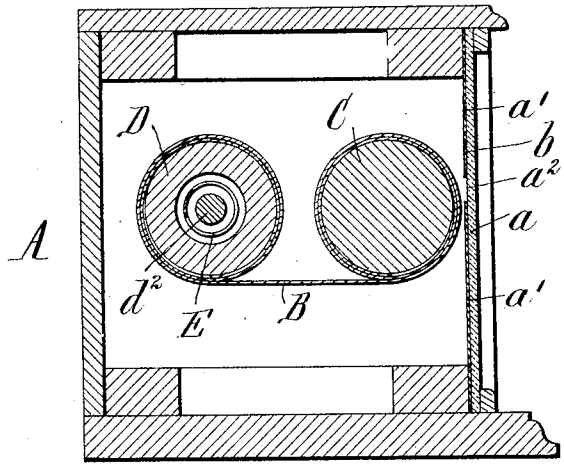


Fig. 5.

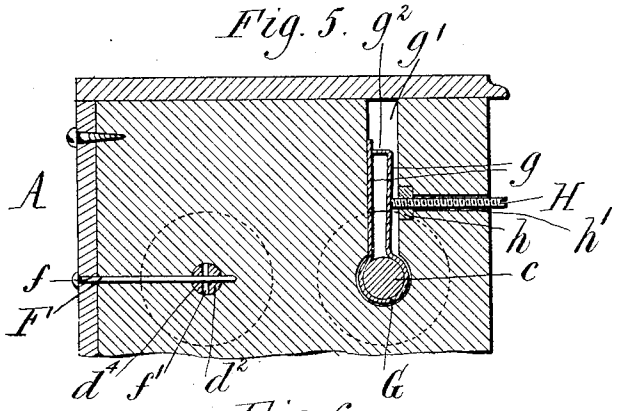
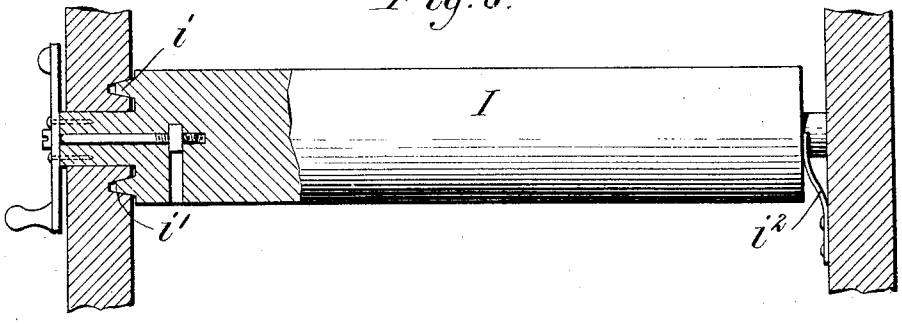


Fig. 6.



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PHOTO LITHOGRAPHED BY ALBERT B. WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 784,272. Patented March 7, 1905.

UNITED STATES PATENT OFFICE.

AUGUSTUS F. NAGLE, OF MONTCLAIR, NEW JERSEY.

TABULAR-SHEET HOLDER.

SPECIFICATION forming part of Letters Patent No. 784,272, dated March 7, 1905.

Application filed April 7, 1904. Serial No. 202,120.

To all whom it may concern:

Be it known that I, AUGUSTUS F. NAGLE, a citizen of the United States, residing at Montclair, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Tabular-Sheet Holders, of which the following is a specification.

This invention relates to flexible tabular or indicator sheet holders of that kind in which the flexible sheet containing the table or indications is connected to rollers which are operated to wind or roll the sheet from one roller onto the other to expose the characters or indications on different portions of the sheet or to place successive characters or indications or sets of characters or indications in juxtaposition to a coöperating scale or indicator.

The primary objects of the invention are to provide a tabular or indicator sheet holder of simple and desirable construction, enabling the sheet to be moved as required in opposite directions or passed from either roll to the other expeditiously and with the least exertion and effort or attention upon the part of the operator, and to equip a device of the character mentioned in which the flexible sheet is connected at opposite ends, respectively, to a manually-operated and power or spring operated roller with a brake device which will hold the rollers and sheet from movement when the manually-operated roller is released and which does not require to be separately operated to permit the manually-operated roller to be freely turned in either direction to move the sheet in opposite directions.

A further object of the invention is to improve the device in several respects, which will appear from the following description and claims.

In the accompanying drawings, consisting of two sheets, Figure 1 is a front elevation, partly in section, of a tabular or indicator sheet holder embodying the invention. Fig. 2 is a horizontal section, partly in plan, thereof in line 2 2, Fig. 1. Fig. 3 is a transverse seetion, on a reduced scale, of the lower portion of the cabinet in line 3 3, Fig. 1, showing the cabinet tilted. Fig. 4 is a transverse sectional elevation of the holder. Fig. 5 is a fragmentary section in line 5 5, Fig. 2, showing the brake device. Fig. 6 is a sectional elevation of a roller provided with another form of brake device.

Like letters of reference refer to like parts in the several figures.

A represents an inclosing and protecting casing or cabinet for the tabular or indicator sheet and operating-rollers. The cabinet may be of any suitable form and construction, being preferably of generally rectangular form and having a glass front *a*, which is opaque or has a non-transparent backing *a'*, except for a narrow strip *a²*, which is transparent and provides an aperture enabling the characters or indications on a portion of the sheet opposite the same to be seen. The glass front is preferred because it renders the cabinet dust-tight and prevents the soiling of the tabular or indicator sheet; but instead of the glass front a slotted front plate could be employed.

B represents a sheet-table or indicator of paper or other flexible material inclosed and protected by the cabinet and provided with characters or indications for any desired purpose arranged in longitudinal and transverse rows. For instance, it may be a pay-roll table provided with numbers indicating the amounts of wages for different periods of time, indicated in a column at one side of the table at different rates, which are indicated by characters arranged opposite to the longitudinal columns of the table on a rate-scale *b* on the front of the cabinet adjacent to the slot or transparent portion thereof. The rate-scale *b* is preferably printed on a strip of paper or the like pasted on the inside of the transparent portion of the glass front. The opposite ends of the flexible table or sheet are attached to rollers C and D, journaled parallel with each other in the cabinet, with one roller adjacent to and parallel with the transparent strip of the glass front, so that the characters on the table can be seen when they are brought opposite to said transparent part of the front. One roller, preferably the front one, C, is provided at opposite ends with journals *c*, bearing in holes *c'* in the opposite end walls of the cabinet, and one of its journals extends outside of the cabinet and is provided at its end with a milled head or handle *c²*, by which the roller can be

rotated by hand in opposite directions. The other or rear roller is power-operated, being preferably similar to the well-known spring curtain-roller and constructed as follows: It is hollow and has at one end a plug d, provided with a journal d', which bears in a hole in the adjacent end of the cabinet.

d^2 is a non-rotary shaft or rod which bears loosely at one end in a bearing-hole in the plug d and passes loosely through a bushing d^8 in the opposite end of the roller and bears in a hole d^4 in the adjacent end of the cabinet, in which it is held from turning by suitable means.

E represents a coil-spring surrounding the stationary shaft d^2 and secured at one end to the latter and at the opposite end to the plug d or other suitable part of the roller.

A very simple and convenient device for holding the shaft d of the spring-roller from turning consists of a pin F, inserted in a hole f in the rear portion of the end of the cabinet and engaging in a slot or hole f' in the shaft. The end of the latter preferably extends through its bearing outside of the cabinet and has a milled head or knob d^5. By withdrawing the holding-pin F the spring-roller shaft can be turned by means of its knob to increase or decrease the tension of the spring as necessary, and the shaft is again held by engaging the pin in the slot. The shaft shown has crossing-slots f', which permit a finer adjustment of the spring, as the roller can be given a quarter-turn and held. When the hand-operated front roller C is turned in one direction, the flexible table or sheet is wound thereupon and unwound from the spring-roller, which is thus turned in a direction to wind up or strain its spring, and when the hand-operated roller is turned in the opposite direction the spring acts to turn the spring-roller in the opposite direction and roll the table or sheet thereon from the other roller.

A brake or retarding device is employed, which resists the action of the spring-roller to wind the table or sheet thereon from the hand-operated roller when the latter is released. This retarding device to be most desirable should not interfere with the easy smooth turning of the hand-operated roller in either direction and should not require to be separately operated.

A desirable brake or retarding device is shown in Figs. 2 and 5 and is constructed as follows: G represents a band or piece of spring metal partially encircling one journal of the hand-operated roller and having two substantially parallel arms or portions g extending away from the journal and confined in a pocket g' in the end of the cabinet in which the journal bears. The end g^2 of one of the arms of the brake-band extends toward and bears against the other arm or part of the band. H is an adjusting-screw which works in a threaded hole of a stationary nut h, confined in a recess in the end of the cabinet adjacent to the brake-band. The inner end of the screw bears against one of the arms of the brake-band and its other end projects out through a hole h' in the end wall of the cabinet, where it can be engaged and turned by a screw-driver or other tool. By adjusting this screw inwardly the arm of the brake-band against which it bears is sprung inwardly between its ends, so as to contract the brake-band around the journal of the hand-operated roller sufficiently to hold the latter frictionally against rotation by the spring-operated roller. In practice a comparatively long light spring is employed in the spring-roller, which is placed under sufficient tension to roll up the flexible table or sheet without placing the same under any considerable strain, and the friction-brake is adjusted to slightly overbalance the tension of the spring and hold the hand-operated roller against rotation by the action of the spring-roller. The hand-operated roller can thus be turned very freely and smoothly and little or no exertion is required to turn the roller in either direction to move the table back and forth. The brake does not require to be separately operated to allow the rollers to turn in either direction.

Brake or retarding devices of other construction could be employed which would operate more or less satisfactorily. For instance, in Fig. 6 the hand-operated roller I is provided at one end with an annular tapering flange i, which is wedged into a correspondingly-shaped annular groove i' in the adjacent end of the cabinet by a spring i^2, secured to the opposite end of the cabinet and bearing against the end of the roller. The spring presses the tapering flange into its groove with sufficient force to hold the roller from being turned by the spring-roller, but permits the hand-operated roller to be turned manually in either direction.

It will be understood that while a single table, with its supporting and operating rollers, is described and shown, two or more sheets, with their rollers, could be similarly mounted in the same cabinet, thus providing separate independent tables or a plurality of independently-operated sections or portions of a single table.

The cabinet is preferably provided at its front side with adjustable legs K for holding it in a more or less tilted or inclined position, as indicated in Fig. 3, to enable the characters on the table and on the front of the cabinet to be more easily seen and read. These legs consist of cylindrical rods slidably confined in vertical holes k in the front portion of the ends of the cabinet in which they are adjustably secured by set-screws k' passing through the threaded holes of stationary nuts k^2 and bearing at their inner ends against the sides of the legs. The latter have shoulders k^3 above and below the set-screws to engage the latter and limit the movement of the legs.

I claim as my invention—

1. The combination of a casing provided with an aperture in one of its walls, a pair of rollers journaled to rotate in said casing and carrying a flexible tabular sheet which is supported by the rollers in proximity to said aperture, a scale on said casing adjacent to said aperture and having characters arranged opposite to the characters on said tabular sheet, one of said rollers having a handle whereby the same can be turned manually in either direction, and the other roller having an internal spring for turning it in one direction, and a brake device which constantly exerts a pressure sufficient to hold said rollers against rotation by said spring and keep the sheet taut and permits said manually-operated roller to be turned by hand in either direction, substantially as set forth.

2. The combination of a casing provided with an aperture in one of its walls, a roller journaled to rotate in said casing and provided with a handle whereby it can be turned by hand in either direction, a roller journaled in said casing and having an internal spring for turning it in one direction, a flexible tabular sheet attached at opposite ends to said rollers and supported thereby in proximity to said aperture, a rate-scale on said casing adjacent to said aperture and having characters arranged opposite to the characters on said tabular sheet, and a friction-brake comprising a metal band embracing one of the journals of said hand-operated roller and having projecting substantially parallel arms, and an adjusting device bearing against one of said brake-arms for regulating the pressure of said brake on said journal, substantially as set forth.

3. The combination of a tabular or indicator sheet, a spring-roller connected to said sheet for moving the same, an inclosing casing, said spring-roller having a shaft which projects outside of said casing whereby it can be turned by hand, and an exposed pin which releasably engages in a slot in said shaft to hold the latter after adjustment, substantially as set forth.

Witness my hand this 5th day of April, 1904.

AUGUSTUS F. NAGLE.

Witnesses:
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WM. H. HURD.