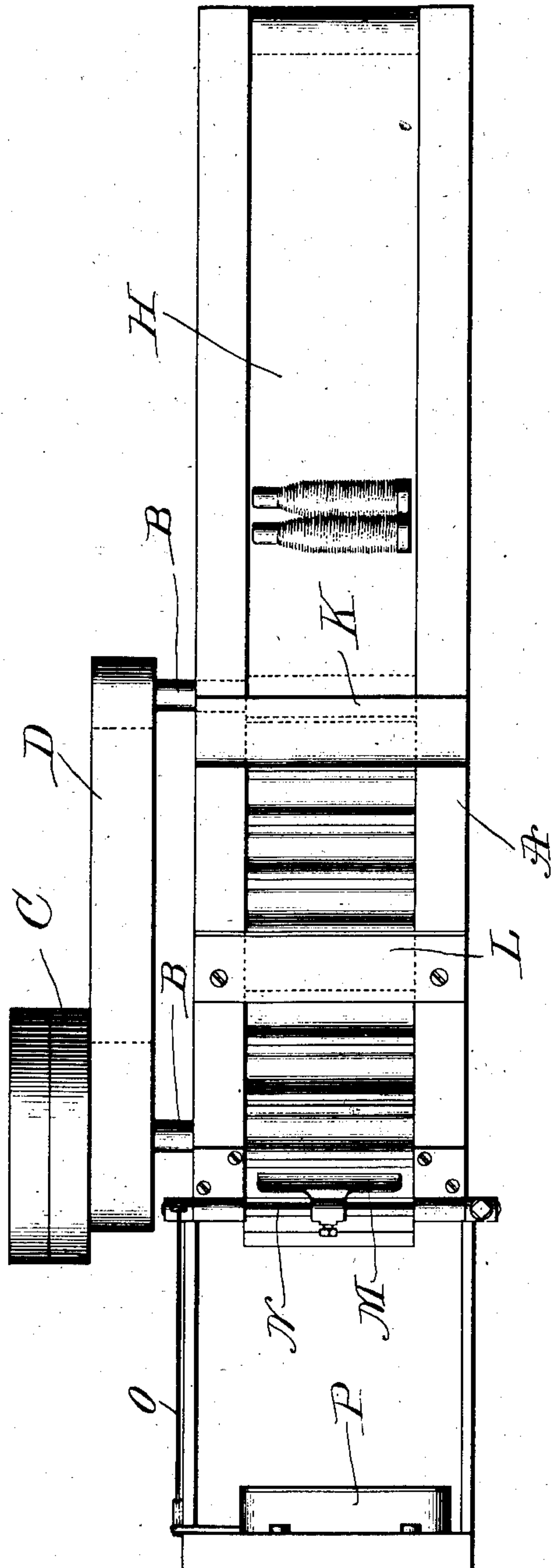


F. SPENCE.
COUNTING MACHINE.
APPLICATION FILED JULY 31, 1905.

927,610.

Patented July 13, 1909.
2 SHEETS—SHEET 1.

Fig. 1.



Witnesses.
Thomas Drummond.
S. Wm. Lutton.

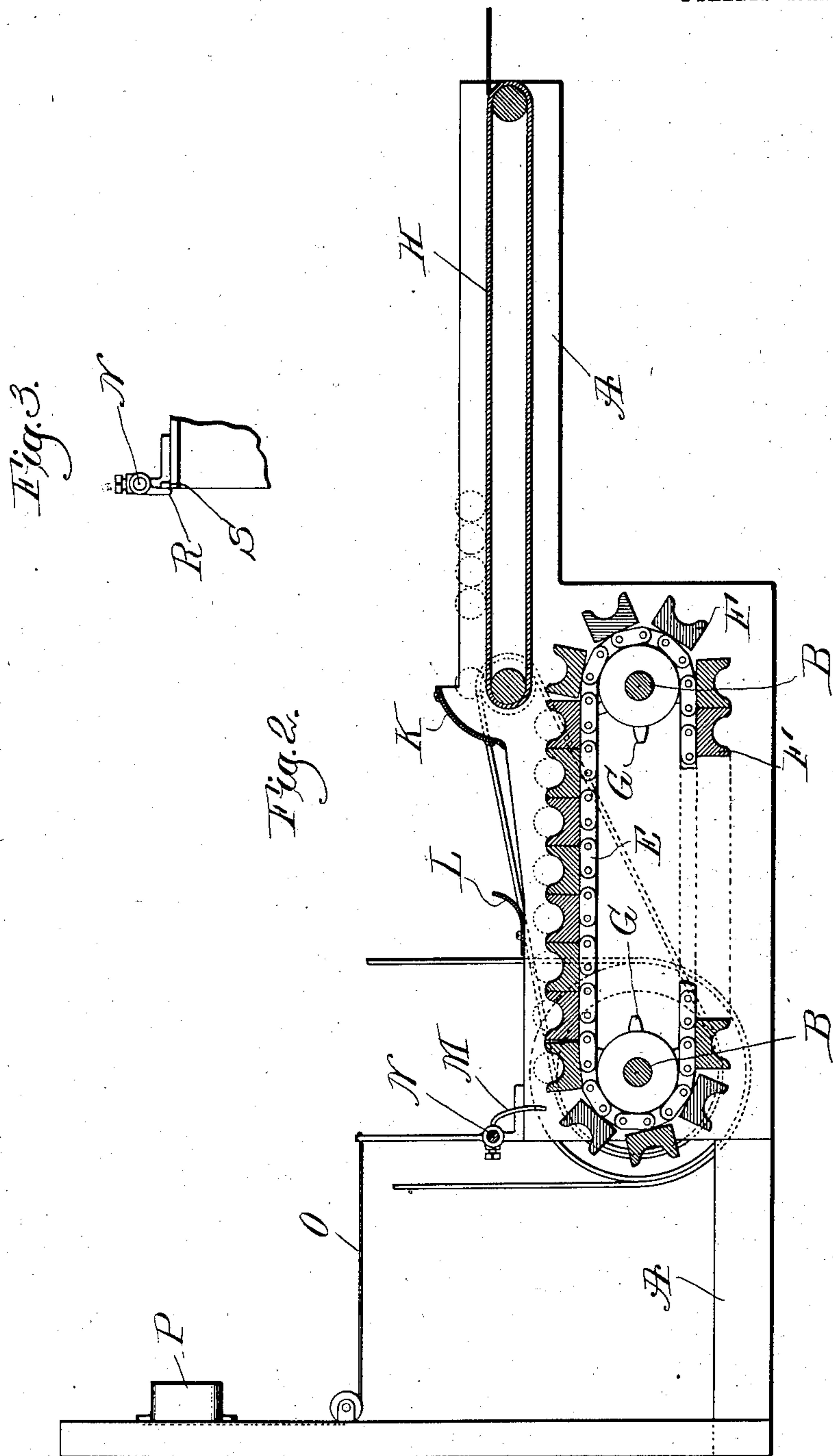
Inventor.
Fred Spence,
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UNITED STATES PATENT OFFICE.

FRED SPENCE, OF SANFORD, MAINE, ASSIGNOR OF ONE-HALF TO GOODALL WORSTED COMPANY, OF SANFORD, MAINE, A CORPORATION OF MAINE.

COUNTING-MACHINE.

No. 927,610.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed July 31, 1905. Serial No. 272,034.

To all whom it may concern:

Be it known that I, FRED SPENCE, a citizen of the United States, residing at Sanford, county of York, and State of Maine, have invented an Improvement in Counting-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The machine of this invention is designed for ascertaining the number of quantities of similar articles, and is particularly designed for ascertaining the number of bobbins handled in the manufacture of textile goods. In the weave room and in other parts of the mill large numbers of bobbins of the same kind and containing the same kind and quality of yarn are handled, and on various occasions it is necessary to ascertain the exact number of bobbins in a given quantity, as when a cloth manufacturer checks the tare allowed on shuttle yarn billed to him; or, as when a spinner sells yarn on shuttle bobbins or paper tubes, and in billing it up, whether to a separate concern or to a different department of the same establishment, the gross weight of bobbins and yarn is taken, and the tare of the bobbins calculated from the known weight of say 100 to 1,000 empty bobbins, and deducted from the gross weight, to show the net amount of yarn. Hitherto it has been necessary to do this by the tedious and more or less inaccurate method of counting by hand.

The present invention comprises a machine for doing this class of work automatically, and it is applicable to empty, as well as filled, bobbins and tubes, and a great variety of other articles, the number of articles counted being noted on a suitable register.

The construction of the preferred form of the invention will be apparent from the accompanying description and claims, and the extent of the invention will be more particularly set forth in the appended claims.

The drawings represent a machine designed particularly for the counting of bobbins, the bobbins being shown in their filled condition.

In the drawings, Figure 1 is a top plan view of the machine; Fig. 2 is a side elevation chiefly in cross-section of the machine shown in Fig. 1; Fig. 3 is a side elevation of a detail showing a stop hereinafter described.

The machine comprises a suitable framework A in which are suitably mounted two shafts B, B. One of these shafts is driven from a pulley C, and the other is driven by means of a connecting belt D. The shafts B, B serve to support an endless conveyer, herein shown as made up of a pair of sprocket chains E, and a series of holders F, preferably supported from or fastened to pivoted bars connecting the two sprocket chains. The conveyer is maintained in position and driven by the sprocket chains passing over suitable sprocket wheels G, G on the shafts B, B. The holders F are shaped on their upper surface of a form suitable to receive the articles to be counted and leave a portion of the article projecting above the periphery of the holder. Herein where the articles are illustrated as bobbins each holder is grooved longitudinally so as to leave about half of the bobbin projecting above each periphery.

The articles may be supplied to the endless conveyer in any desired manner, but one feature of the invention consists in a supply formed as an endless belt or apron H, driven in some suitable manner and extending over the rear end of the endless conveyer. When the articles to be counted, as the bobbins, are placed upon this apron H they will be fed forward and fall one by one upon the endless conveyer, resting in the pockets of the holders.

Extending across the framework near the forward end of the apron H and above the endless conveyer is a curved guard K, which serves to aline the articles as they are fed forward upon the apron H, prevent crowding and cause them to drop into individual holders F. Located further along on the framework and near the forward end is a second or wiper guard L, extending across the framework above the endless conveyer. If, for any reason, too many articles have been fed onto the conveyer this wiper guard L will hold them back and brush them finally into a holder pocket, thus preventing more than one article for each holder being fed forward.

Near the forward end of the endless conveyer is located a tripping finger M, which projects into the path of the articles as they rest in the holders, and is actuated by the movement of the articles past it. This tripping finger is pivoted in a suitable way to the framework at N, and connected at its

upper end by a cord O to the actuating mechanism of a register P. On one end of the shaft N a stop R is provided cooperating with a small projection S on the framework which limits the return movement of the tripping finger M. The mechanism of the register P serves to exert a constant tension upon the cord O and holds the tripping finger in its normal position in the path of movement of the endless conveyer. It will thus be seen that in operation the articles, such as the bobbins, are placed on the belt or bobbin H, the belt being driven feeds the articles forward, and the guard K serves to position them as they drop upon the endless conveyer and fall into the holder pockets. They are then carried on by the endless conveyer and if any extra have accumulated the wiper guard L serves to brush them back and to prevent more than one article to each pocket being fed forward. As the articles are fed forward one by one they come in contact with the tripping finger M, which actuates the register P. If any holder comes forward empty the tripping finger is not actuated. Thus, every article fed through the machine causes an operation of the register. When the article passes the tripping finger it falls from the conveyer and drops into a suitable receptacle placed beneath the forward portion of the framework of the machine. To ascertain the number of articles passed through the machine it is only necessary to note the register.

The construction of the conveyer for carrying the articles past the tripping finger in the form of an endless chain conveyer is an important feature of the invention. By it the articles travel a considerable distance in a flat or horizontal path before reaching the finger, thus giving opportunity for the articles to settle into the pockets in the conveyer before reaching the finger, and consequently the machine can be run at a considerable speed. The feeding apron is also another important feature of the invention, because it gives an even and positive feed, and if any of the articles to be supplied to the endless conveyer are placed upon the apron at an improper angle to drop into the pockets, the movement of the apron tends to place them in the correct position at right-angles with the direction of movement of the endless conveyer, the articles being carried

up against the guard K and dropped into correct position upon the endless conveyer. Another feature consists in that the apron and the endless conveyer are both uncovered substantially throughout their entire length, the wiper guard L and the curved guard K taking up but a small amount of space. This enables the operator to reach in and remove any of the articles before they reach the tripping finger which it is desired should not be counted by reason of imperfection, or from some other cause.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a counting machine, an uncovered endless chain conveyer provided with holders for the articles to be counted, said conveyer being of such a length that a considerable number of holders are arranged in the upper run thereof, means to deliver articles to the upper run of said conveyer at one end thereof, a register, a tripping finger located at the opposite end of said conveyer and in position to be engaged by an article carried by a holder as said holder leaves the upper run of the conveyer, and means to operate the register by movement of the tripping finger.

2. In a counting machine, an endless chain conveyer provided with holders for the articles to be counted, said conveyer being of such a length that a considerable number of holders are arranged in the upper run thereof, said upper run being uncovered so that said holders are accessible as they travel the length of said upper run, a movable feeding apron situated above said conveyer and adapted to feed articles to one end thereof, a tripping finger at the opposite end of the conveyer situated to be engaged by the articles in the holders as they leave the upper run of the conveyer, a register operated by said tripping finger, and a wiper guard located above said conveyer and separated from both the tripper and the feeding apron.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

FRED SPENCE.

Witnesses:

JOSEPH LECKENBY,
WM. BATCHELDER, Jr.