

(No Model.)

3 Sheets—Sheet 1.

A. CRUICKSHANK.
LUMBER MEASURE.

No. 407,175.

Patented July 16, 1889.

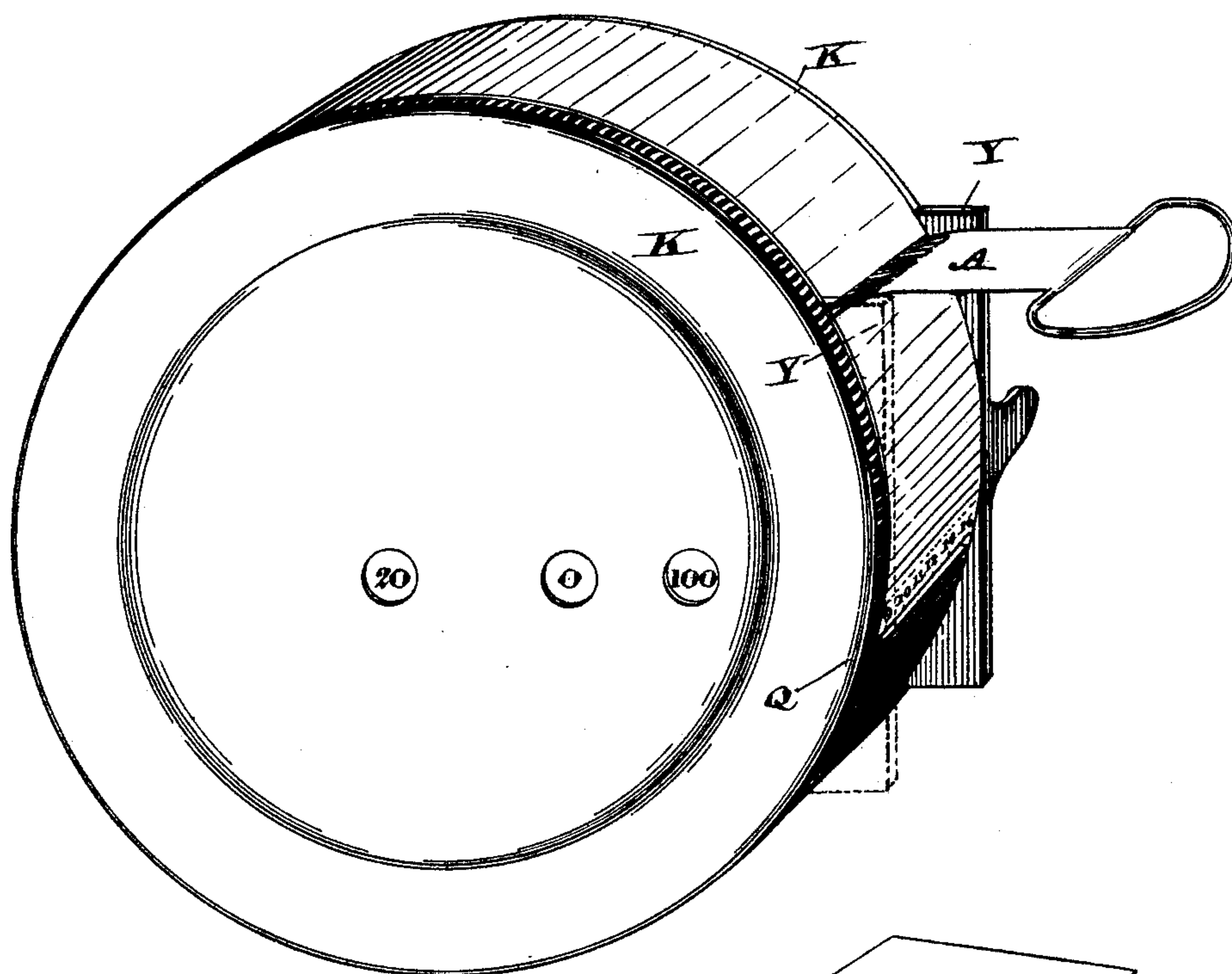
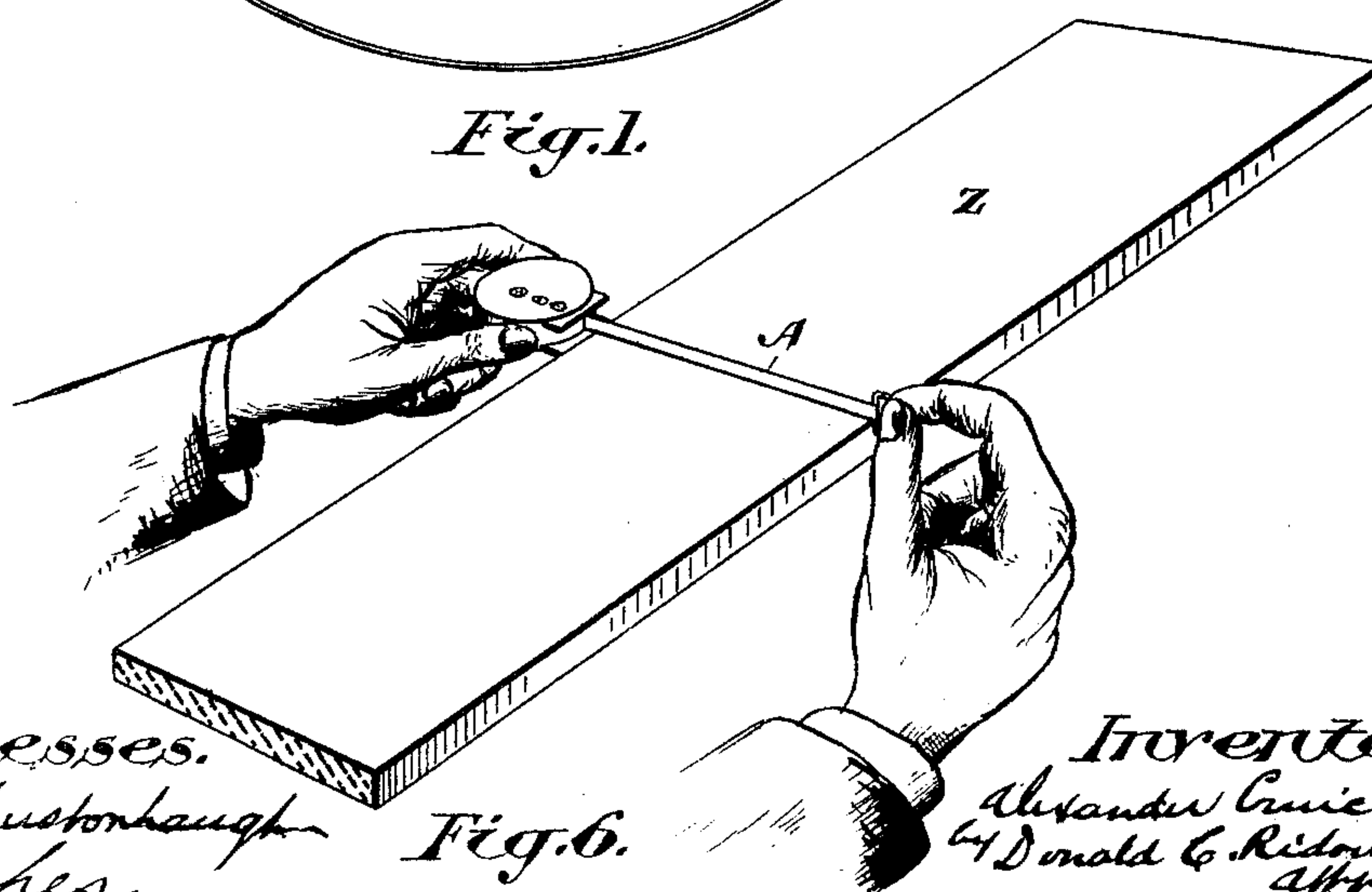


Fig. 1.



Witnesses.
F. B. Fethurstonsbaugh
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Fig. 6.

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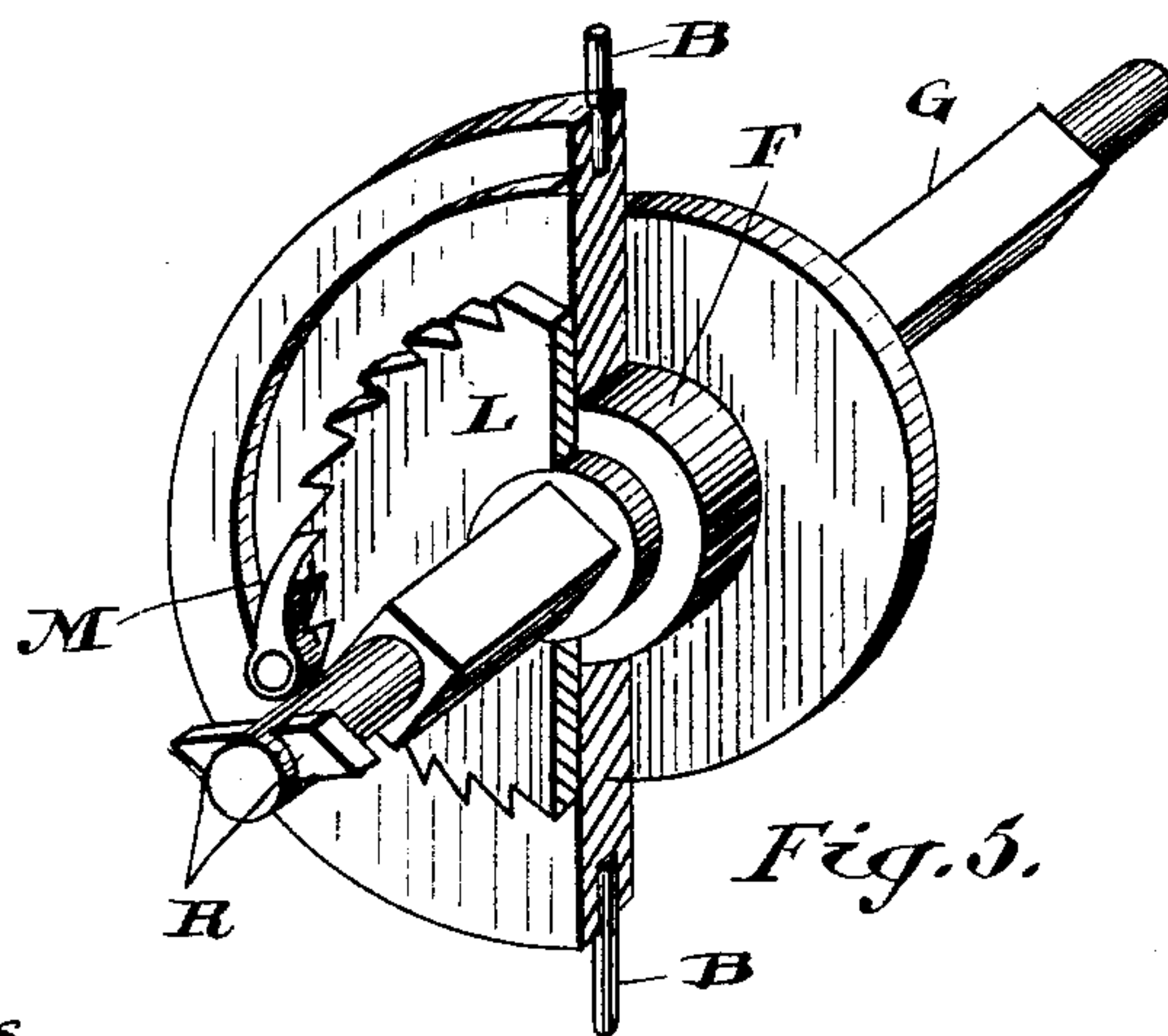
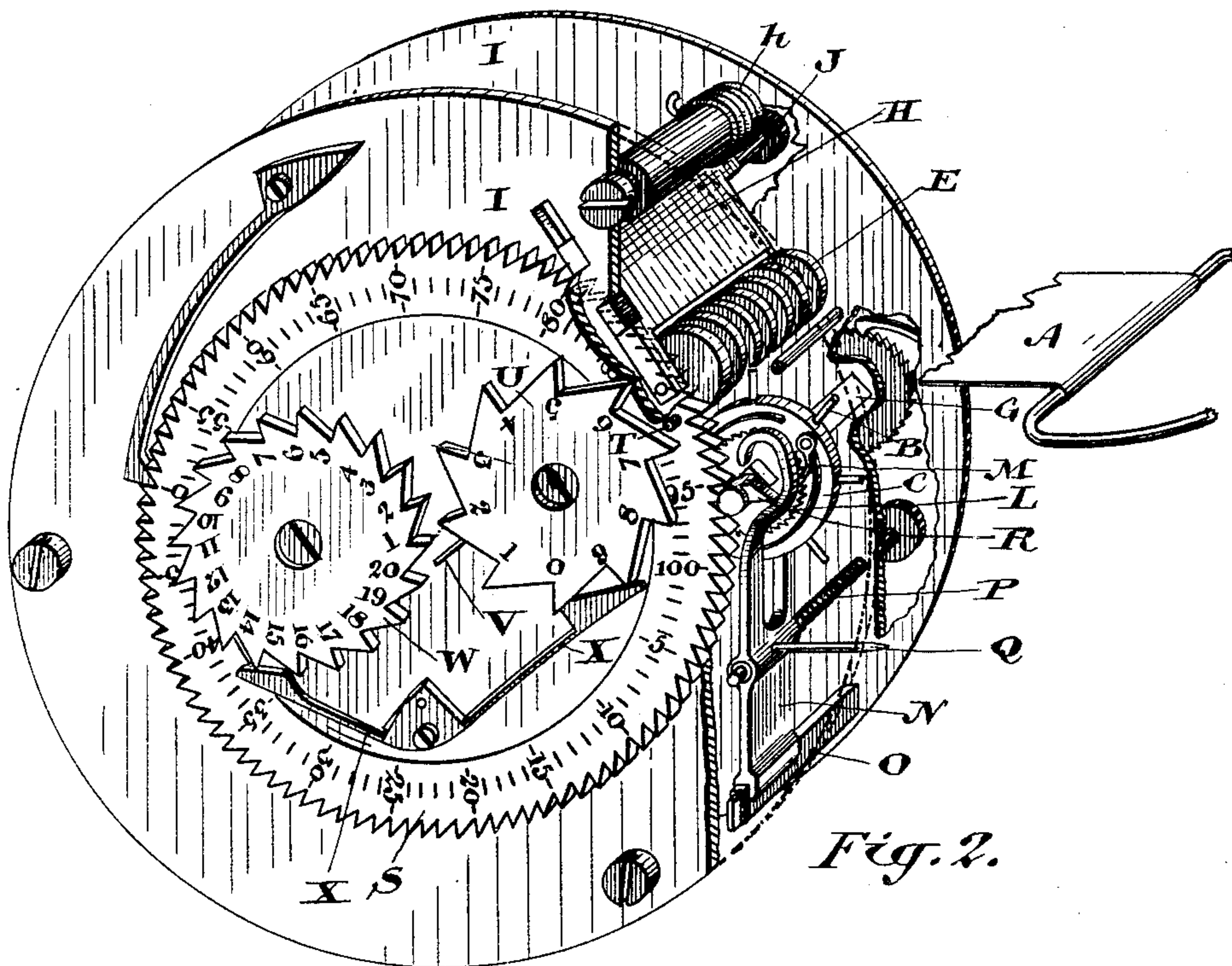
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3 Sheets—Sheet 2.

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A. CRUICKSHANK.
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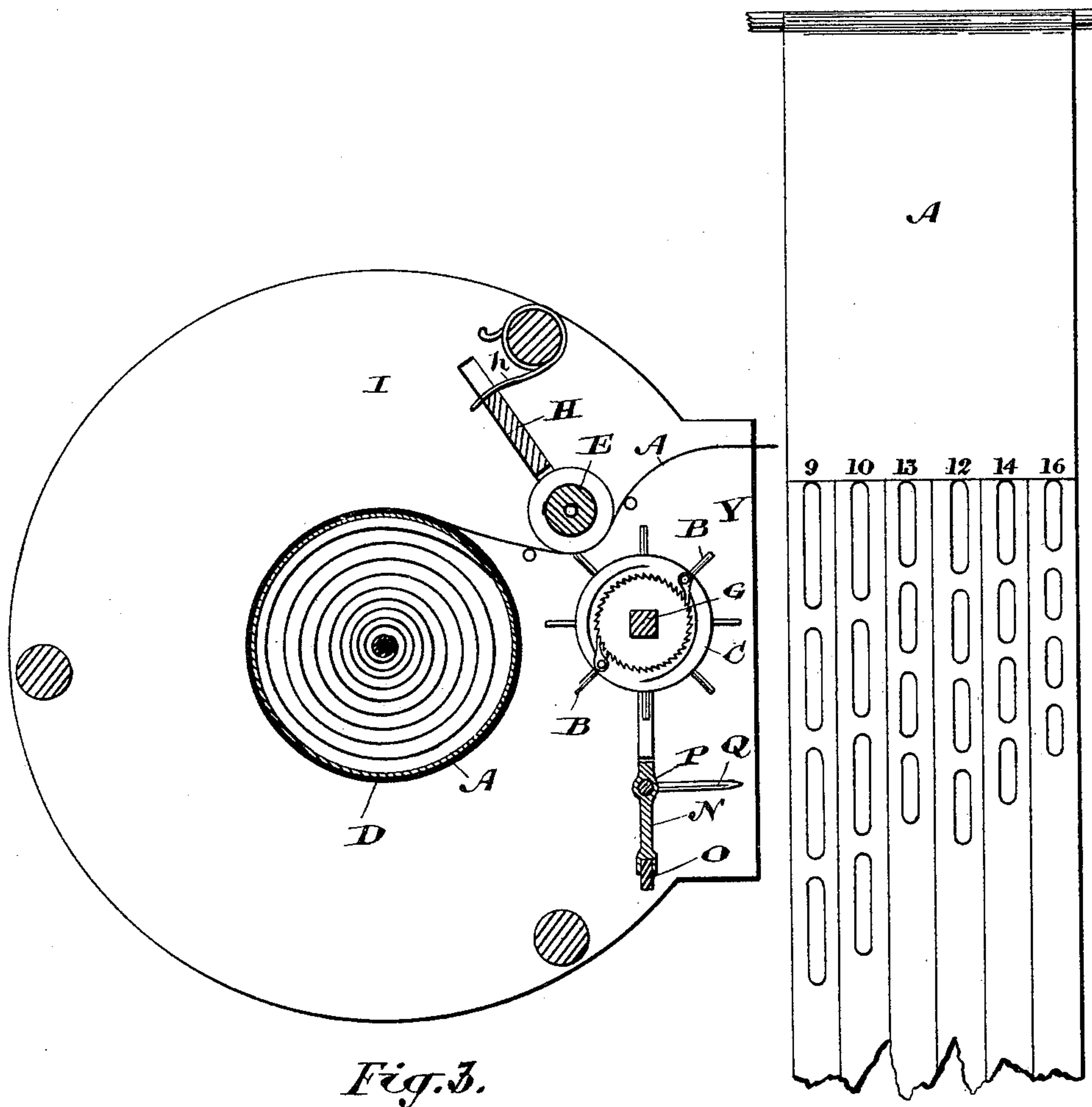


Fig. 3.

Fig. 4.

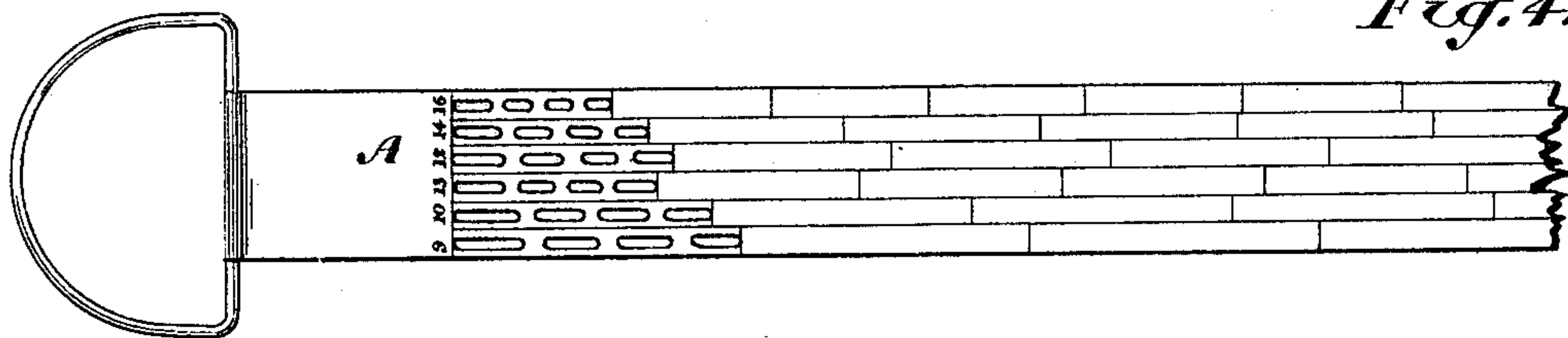


Fig. 4a.

Witnesses.

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UNITED STATES PATENT OFFICE.

ALEXANDER CRUICKSHANK, OF WESTON, ONTARIO, CANADA.

LUMBER-MEASURE.

SPECIFICATION forming part of Letters Patent No. 407,175, dated July 16, 1889.

Application filed September 1, 1888. Serial No. 284,352. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER CRUICKSHANK, gentleman, of the village of Weston, in the county of York, in the Province of Ontario, Canada, have invented a certain new and Improved Lumber-Measurer, of which the following is a specification.

The object of the invention is to design a lumber-measurer which will accurately sum up and register the board-measure of lumber without the necessity of any mental arithmetic by the party using the measurer; and it consists, essentially, of a ribbon of steel or other suitable material having stamped or otherwise formed on its surface a series of divisions similar to the divisions on an ordinary lumber-rule, each division representing one foot board-measure, or other proportion in a board of a given length, for which the particular divisions may be marked, suitable mechanism being provided by which the movement of the ribbon while measuring the width of a board shall act upon a counter by which the board-measure of all the pieces measured shall be automatically summed up and registered, substantially in the manner hereinafter more particularly explained.

Figure 1 is an enlarged outside perspective view of my improved lumber-measurer. Fig. 2 is an enlarged perspective view, partially in section, of the mechanism by which the summing up and registering are effected. Fig. 3 is a sectional side view of the ribbon-reel and mechanism acting directly with the ribbon. Fig. 4 is a plan of the ribbon enlarged to correspond with the mechanism shown in Fig. 3. Fig. 4^a is a plan of the ribbon. Fig. 5 is an enlarged perspective detail, partially in section, of the driving-spindle and its spoked disk, which engages with and is driven by the ribbon. Fig. 6 illustrates the manner of using my improved measurer.

In the statement of the nature and object of my invention I refer to the fact that my improved measurer is based upon the principle adopted in ordinary lumber-rules now in use—*i. e.*, the divisions which in a foot-rule represent inches are in the lumber-rule divided to indicate the foot board-measure of a board of a given length.

Lumber is usually cut in lengths ranging from nine to sixteen feet—*i. e.*, there are gen-

erally six sets of divisions on the rule, each set of divisions being marked for a board of a given length. For instance, the set of divisions for a twelve-foot board should be each one inch long; for a fourteen-foot board should be each twelve-fourteenths inch long; for a sixteen-foot board should be each twelve-sixteenths inch long; for a ten-foot board should be each twelve-tenths inch long; for a nine-foot board should be each twelve-ninths inch long; for a thirteen-foot board should be each twelve-thirteenths inch long. In other words, each division will indicate one foot board-measure in a board of the length for which the division is marked.

It will be noticed on reference to Figs. 4 and 4^a that each division of the six sets marked on the ribbon A has four elongated holes made in it, which holes are designed to engage with the spokes B, projecting from the disk C.

On reference to Figs. 2 and 3 it will be noticed that the ribbon A is wound upon a drum D, provided with a spiral spring designed to revolve the said drum for the purpose of winding the ribbon A upon it in the same manner as the ribbon of an ordinary tape-measure is wound. It will also be observed on reference to these figures that the ribbon A passes below and is held in contact with the grooved roller E. The disk C is loosely journaled on a sleeve F, which is adjustably fitted upon the spindle G. The grooved roller E is journaled between jaws formed in the adjustable plate H, against which the spring *h* presses, so as to hold the roller E in position. This plate H is fitted between and is supported in grooves made in the annular plates I, forming the frame of the mechanism.

A button J is attached to the plate H and projects through the casing K, in order that the plate H may be adjusted so as to bring the grooved roller E nearer to or farther from the spokes B. A ratchet-wheel L is fixed to the sleeve F, and a pawl M is pivoted on the face of the disk C, so as to engage with the teeth of the ratchet-wheel L, as indicated. It follows, therefore, that when the disk C is revolved in one direction it will turn freely on its journal, and when it is moved in the opposite direction the pawl M will engage with

the ratchet-wheel L and cause it, with its spindle G, to revolve. It will be noticed that there are six grooves in the roller E, each groove corresponding with one of the sets of divisions made on the ribbon A. A forked bracket N extends on each side of the disk C, and is supported on a suitable bar O, extending between and attached to the annular plates I, as shown.

10 P is a screw screwed into the bracket N and extending through the outer casing K, where it has a button formed on its end to enable it to be readily operated. By adjusting the screw P the disk C may be brought
15 opposite to any one of the grooves desired in the roller E.

A pointer Q, fixed to the bracket N, extends through a horizontal groove in the casing K, on the side of which are marked figures indicating the divisions on the ribbon A.

R is a two-winged dog fixed to the spindle G, and designed to engage with the teeth made in the large ratchet-wheel S.

T is a pin projecting from the face of the large ratchet-wheel S, and designed to come in contact with one of the teeth in the ratchet-wheel U and cause the said ratchet-wheel to move on its axis the distance of one tooth at each revolution of the large ratchet-wheel S.

30 V is a pin projecting from the face of the ratchet-wheel U, and designed to engage with one of the teeth in the ratchet-wheel W, so as to cause the said ratchet-wheel to move on its axis the distance of one tooth at
35 each revolution of the ratchet-wheel U.

Spring-fingers X are designed, as shown, to act upon the ratchet-wheels U and W and assist their movement of one tooth when acted upon by their respective pins, as described.

40 These ratchet-wheels S, U, and W have numerals marked on their faces, and constitute the counter by which the measuring by the ribbon A is registered.

45 Having now described the general construction of the mechanism used in connection with my measuring-ribbon, I shall proceed to briefly explain its operation.

Assuming that I wish to measure a board sixteen feet long, I would adjust the screw P
50 so as to bring the pointer Q opposite to the figure "16" on the casing K. This action would bring the disk C in position so that its spokes B shall be opposite to the oblong holes made in the division marked "16" on the ribbon A,
55 which division is immediately over the corresponding groove made in the roller E. I should mention that in order to permit of this adjustment it is necessary to push upon the button J, so as to carry the grooved roller E
60 clear of the spokes B during the period that the disk C is being adjusted as specified. The shoulder Y on the casing K is then placed against one end of the board Z, (see Fig. 6,) and the ribbon, which at this period is let
65 into the casing as far as it will go, is drawn out until its end reaches the opposite edge of the board Z. During this action the spokes

B, engaging with the elongated hole made in No. 16 division of the ribbon A, are moved by the motion of the said ribbon, causing the
70 disk C to revolve its spindle G, and, through its two-winged dog R, causes the ratchet-wheel S to be moved two teeth at each revolution of the disk C. As an example, we will suppose that the board is twelve inches wide.
75 In this case the tape will be drawn out until the twelfth division has acted upon the disk C, thereby registering on the counter twelve feet square of board-measure. The ribbon is then allowed to spring back into its initial
80 position, and, as the disk C is held to its spindle by a pawl-and-ratchet connection, the said spindle and the counting-gear connected thereto remain stationary, while the ribbon
85 moves back into its case. As each board is measured the counter is thus moved to register the quantity of lumber measured, and this is effected without any calculating on the part of the party using the measurer.

In the drawings I show four elongated holes
90 for each division and eight spokes for the disk; but of course these proportions may be varied to suit the taste of the manufacturer. I may also mention that I do not wish to confine myself to holes in the tape and spokes in
95 the disk, as other means might be devised for conveying the movement of the tape or ribbon to a counter for effecting the purpose specified. It will also be understood that I do not wish to confine myself to the exact
100 mechanism in the counter shown, as this also might be readily altered without in any way changing the principle of my invention.

What I claim as my invention is—

1. A ribbon of steel or other suitable material having stamped or otherwise formed
105 on its surface a series of divisions substantially similar to the divisions on an ordinary lumber-rule, each division representing one foot board-measure, or other fixed proportion
110 in a board of a given length for which the particular divisions may be marked, in combination with a disk actuated by said ribbon and its accessories, by which the movement
115 of the ribbon while measuring the width of a board shall act upon a counter by which the board-measure of all the pieces measured shall be automatically summed up and registered, substantially as and for the purpose
120 specified.

2. A ribbon A, having stamped or otherwise formed on its surface a series of divisions substantially similar to the divisions on an
125 ordinary lumber-rule, each division representing one foot board-measure, or other fixed proportion in a board of a given length for which the particular divisions may be marked, in combination with a disk arranged to engage with the ribbon A, and so connected to a counter that the movement of the ribbon shall
130 cause the counter to move and register the quantity of lumber measured, substantially as and for the purpose specified.

3. A ribbon A, marked with a series of di-

visions substantially similar to the divisions on an ordinary lumber-rule, substantially as described, and wound upon the spring-drum D, the said ribbon extending past and held
5 against the roller E, in combination with the disk C, having spokes B radiating from it to engage with the elongated holes made in the ribbon A, and with counting mechanism connected, as described, to the spindle of the disk
10 C, substantially as and for the purpose specified.

4. A ribbon A, marked substantially as described and wound upon the spring-drum D, the said ribbon extending past and held
15 against the roller E, which is supported in suitable journals made in the adjustable plate II, in combination with the longitudinally-adjustable disk C, having spokes B radiating from it to engage with the elongated holes
20 made in the ribbon A, and with counting mechanism connected, as described, to the spindle of the disk C, substantially as and for the purpose specified.

5. A ribbon A, marked substantially as de-

scribed and wound upon the spring-drum D, 25 the said ribbon being provided with perforations extending past and engaging with the disk C, which is provided with spokes and journaled on a sleeve F, longitudinally adjustable upon the spindle G, in combination with
30 the bracket N and screw P, substantially as and for the purpose specified.

6. A ribbon A, marked substantially as described and wound upon the spring-drum D, the said ribbon being provided with per- 35 forations extending past and engaging with the disk C, which is provided with spokes and journaled on a sleeve F, longitudinally adjustable upon the spindle G, in combination with a bracket N, pointer Q, and adjustable
40 screw P, substantially as and for the purpose specified.

Toronto, August 9, 1888.

ALEXANDER CRUICKSHANK.

In presence of—

CHARLES C. BALDWIN,
CHAS. H. RICHES.