

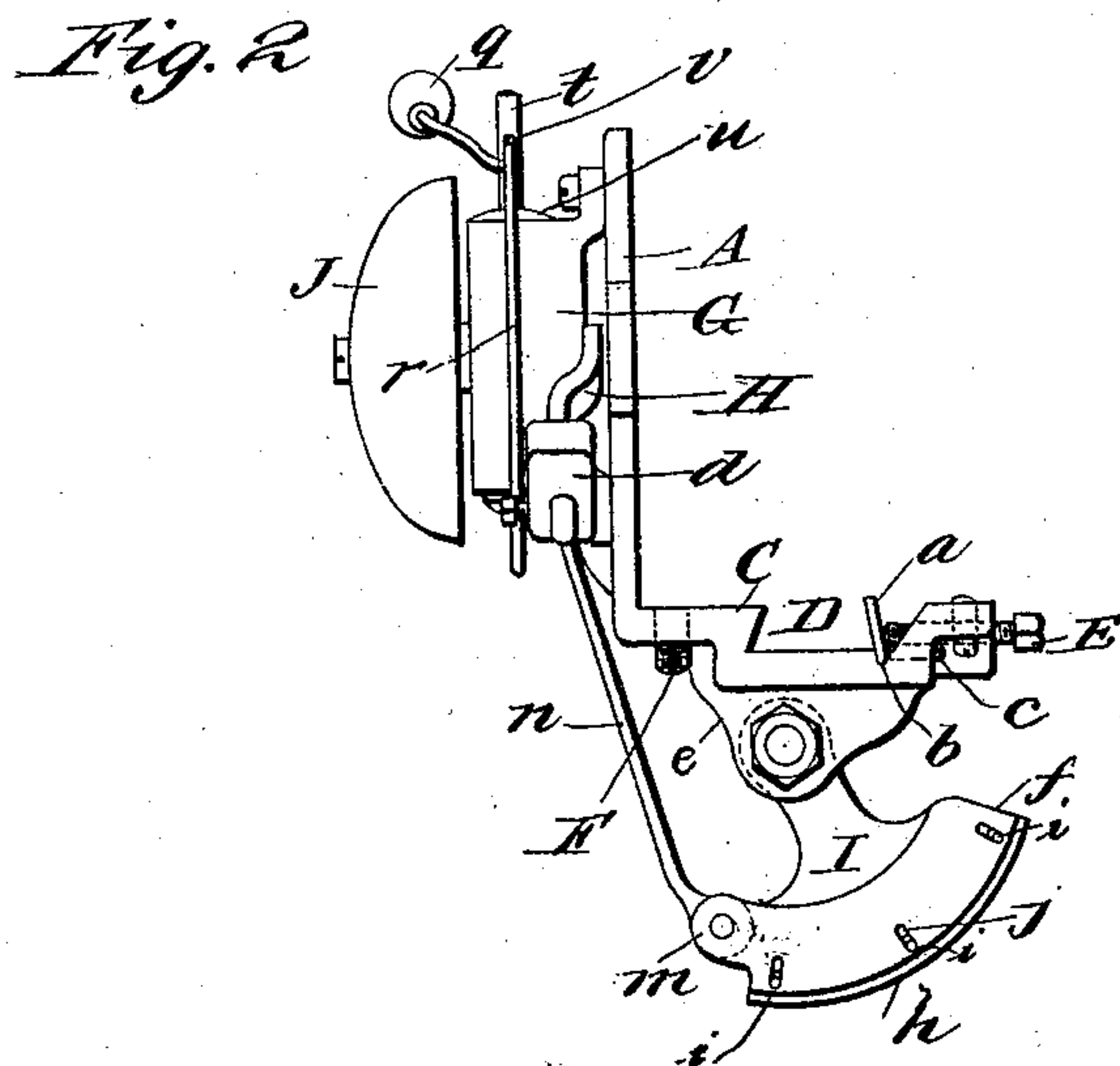
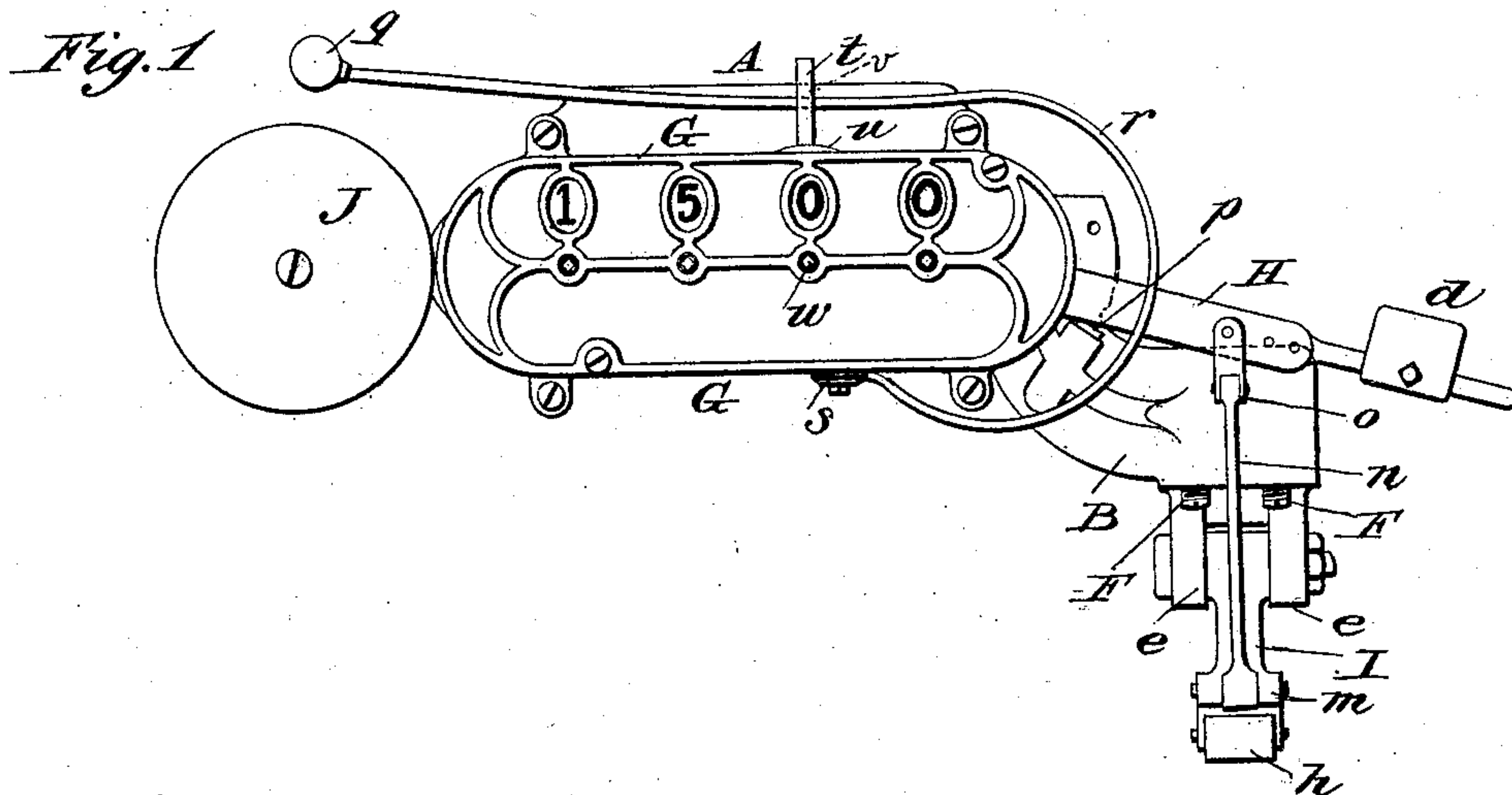
(No Model.)

H. O. & S. ERTEL.

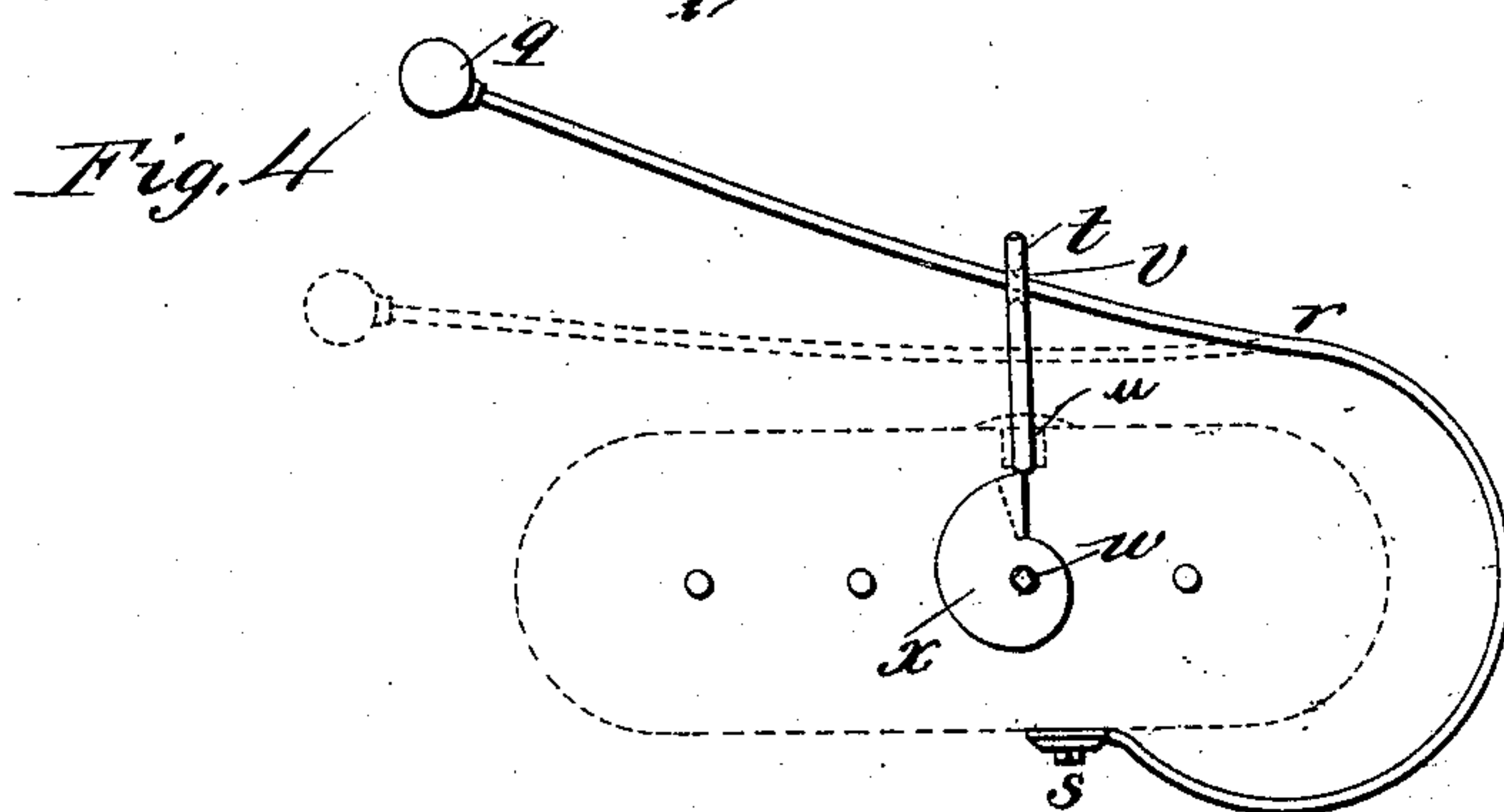
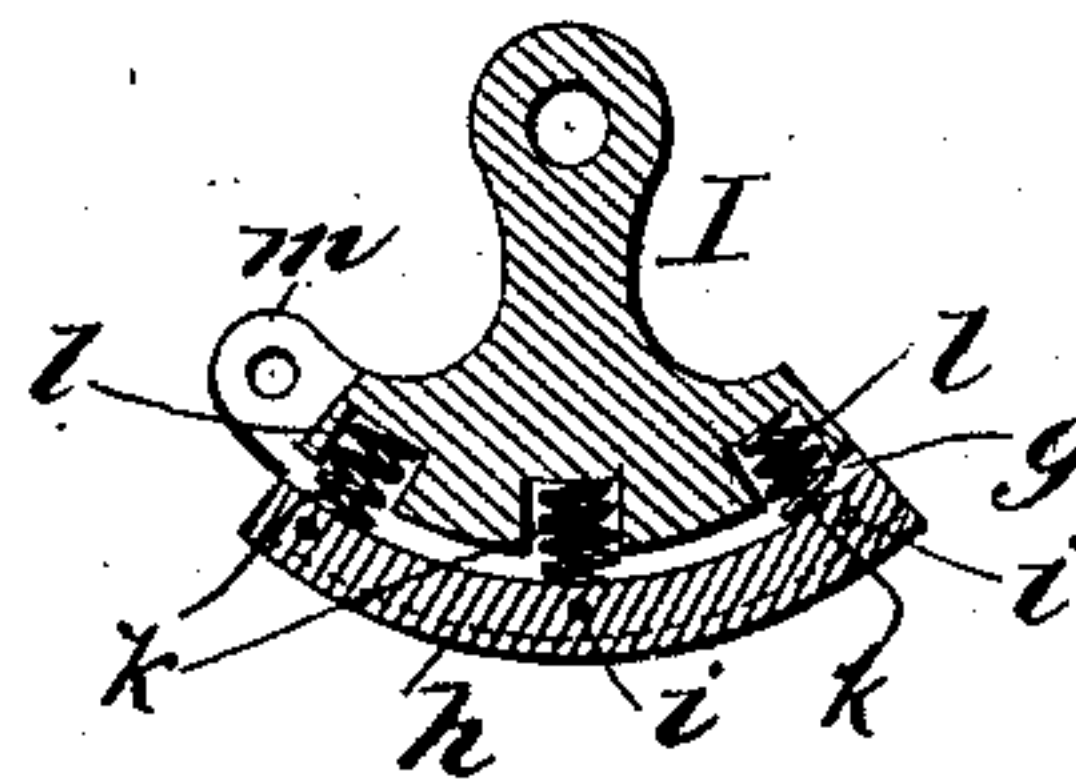
MECHANISM FOR OPERATING REGISTERS FOR SCORING MACHINES.

No. 556,261.

Patented Mar. 10, 1896.



*Fig. 3*



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## MECHANISM FOR OPERATING REGISTERS FOR SCORING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 556,261, dated March 10, 1896.

Application filed September 24, 1895. Serial No. 563,503. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY O. ERTEL and SAMUEL ERTEL, citizens of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Mechanism for Operating Registers for Scoring-Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to certain new and useful improvements in mechanism for operating registers adapted particularly for the counting of sheets of board as they are passed through a scoring-machine, but which are also adapted for use with other machines for the counting of any separate flat objects and for analogous purposes; and our invention particularly relates to improved mechanism for operating a register as each sheet passes through the machine, and further to improved mechanism for sounding a gong or bell when a predetermined number—say one hundred or a thousand—of sheets have been counted.

The objects of our invention are to provide and produce a mechanism for operating registers which can be made very cheaply and applied to any desired form of scoring or other machine, and which will be durable and absolutely automatic in use.

A further object is to provide a device for this purpose wherein sheets of different lengths or widths and of different thicknesses may be counted; and a still further object is to provide simple and effective mechanism operating in conjunction with the register by means of which a gong or bell will be sounded when a predetermined number of sheets have been counted.

These and further objects are accomplished by the employment of the construction invented by us, as will be fully described and claimed.

In order that our invention may be understood, attention is directed to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a front elevation of the device; Fig. 2, a side view of the same; Fig. 3, a sectional view of the operating-cam detached,

and Fig. 4 a separate view of the elements comprising the gong-operating devices.

In all of the above views the same or corresponding parts are represented by the same letters of reference.

A represents a base provided with a downwardly-extending curved arm B and with a horizontal rearwardly-extending arm C, these elements being conveniently made in one piece of cast-iron. The arm C is cut away, as shown, to form a recess D, the side of which nearest the base A being inclined inwardly. At the other side of said recess is a plate *a*, held permanently in place in a shallow groove *b* by means of short studs *c*. This construction allows the plate *a* to be inclined more or less toward and away from the base A.

E is a screw-bolt engaging the plate *a* for forcing the same tightly against an element of, or upon, the scoring-machine lying within the recess D.

F F are screw-bolts passing up through the arm C for engaging said scoring-machine element and by means of which, in conjunction with the plate *a*, the entire device will be firmly and rigidly secured in place.

G G represents a register secured to the front of the base A and of any suitable and appropriate construction. We make no claim to this register and may use any desired type thereof; but we will state that in actual use we have experimented, with excellent results, with a register employing a series of disks representing units, tens, hundreds, thousands, and so on, one number on each disk showing through suitable glass-covered holes in the front of the register, as shown in Fig. 1.

H represents a lever for actuating the register-disks or other number-carrying elements by a single up-and-down movement, and *d* is a weight on said lever for keeping the same always down. This weight is adjustable on said lever in a well-known way. We may state that a spring may be substituted for said weight, and, if desired, be so arranged as to keep the lever normally elevated.

Cast integral with the arm C is a pair of ears or lugs *e e*, mounted side by side, and extending downwardly and pivoted between these lugs on a bolt or other suitable spindle is an operating-cam I, the construction of which is shown particularly in Fig. 3. Said



cam is of the general quadrant shape shown, its curved face being downward. At its lower end it is provided with an enlarged head *f*, having a groove *g* extending the entire length 5 of the same. Seated in this groove *g* is a pressure-foot *h*, which is of less thickness in its vertical diameter than the depth of said groove, whereby the said pressure-foot will have some play therein. Pins *i i*, working in 10 slots *j* in the head *f*, serve to keep said pressure-foot in place and at the same time allow for the necessary play thereof.

In order to keep the pressure-foot *h* normally in its lowest position, we employ a number of springs *k* (three being shown) seated 15 in pockets *l l* formed in the body of the cam I. When the parts are properly arranged ready for operation, the pressure-foot *h* should be so located as to be engaged by the sheets of 20 board or other work, and be swung thereby in the direction of movement of the sheet.

The cam I is provided on its front end with a pair of ears *m*, and connecting the same with the lever II is a connecting-rod *n*, a uni- 25 versal joint *o* being provided to allow for the compound movement of these parts.

In order to cushion the parts as they drop back after a sheet has passed from beneath the pressure-foot, we provide a small rubber 30 buffer *p*, secured to the base A, and against which the lever II strikes at its lowest position.

The elements above described constitute the register-operating mechanism and produce 35 a commercially-successful and extremely-efficient device. We prefer, however, to employ in addition to the same a gong or bell, which will be sounded when a predetermined number of sheets have been counted, there- 40 by constituting a convenient way for indicating the counting of the sheets in large numbers by audible notification. We will now proceed to describe this mechanism.

J represents a suitable bell or gong supported in any suitable way, either to the base 45 A or to the register. The hammer *q* of the bell or gong is carried on the end of a long spring *r*, which extends along the top of the register, around one end thereof, and is secured by means of a plate *s* to the bottom of 50 the register. In the type of register shown we operate the bell-hammer by means of an arm *t*, working in a bearing *u* in the top of the register, and having a hole *v*, Fig. 2, near 55 its upper end, through which the spring *r* passes. The said arm serves also as a guide for said spring. On the shaft *w* of one of the numbered disks, Figs. 1 and 4, is secured a cam *x*, of the shape shown, and on which the 60 lower end of the arm *t* bears, being held in such engagement by the tension of the spring *r*. In Fig. 2 we show the arm *t* working in connection with the second disk representing tens, so that the gong or bell J will be sounded 65 when each hundred sheets have been counted.

Our device operates as follows: The sheets are passed one at a time by the operation of

the scoring-machine beneath the pressure-foot *h*, and said foot is moved with the sheet 70 so as to swing the cam I in the same direction. This elevates the lever II through the intermediate rod *n*, and when the sheet has passed from beneath the pressure-foot the weight *d*, or its equivalent, returns the parts 75 operating the register and counting the sheets. As the second disk of the register rotates, carrying the cam *x* with it, the arm *t* will be slowly elevated so as to retract the hammer *q* from the gong or bell. When the cam has made a complete rotation the arm *t* 80 will be free to move inwardly and the spring *r* will cause the hammer to sound the bell.

It will be seen that with our improved mechanism for operating a register sheets of different lengths can be counted, the cam I being 85 operated by a comparatively-short movement, so that a part of the sheet slides beneath it. It is further to be seen that by employing a spring pressure-foot, as described, it will be forced more or less toward the cam I, 90 according to the thickness of the sheet, whereby sheets of different thicknesses can be counted.

When the position of the pressure-foot is to be adjusted with respect to the scoring- 95 machine to accommodate decided changes in the thickness of sheets to be counted, we operate the screw-bolts F F to force the entire device downwardly after having first loosened 100 the plate *a* to allow for this movement; or if the pressure-plate is to be raised we withdraw the said screw-bolts F F more or less, and then operate the screw-bolt E so as to elevate the device.

Having now described our invention, what 105 we claim, and desire to secure by Letters Patent, is as follows:

1. In a register for counting separate flat objects, the combination of a register, a swinging cam movable in the direction of the ob- 110 jects to be counted, and provided with a curved bearing-face engaged by the upper surface of the objects so that said cam will be swung therewith, and connections between said swinging cam and the register for indi- 115 cating each forward or backward movement of the cam, said cam swinging back to its original position after each object has passed from beneath said curved bearing-face, substantially as set forth. 120

2. In a register for counting separate flat objects, the combination of a register, a swinging cam movable in the direction of the ob- 125 jects to be counted, and provided with a curved bearing-face engaged by the upper surface of the objects so that said cam will be swung therewith, connections between said swinging cam and the register, for indicating each forward or backward movement 130 of the cam, and means for returning said cam back to its original position after each object has passed from beneath said curved bearing-face, substantially as set forth.

3. In a register for counting separate flat



objects, the combination of a register, a cam mounted adjacent to said register and capable of swinging movement, a movable pressure-foot carried in the periphery of said cam and arranged to be engaged and operated by the sheets, and connections between said swinging cam and said register, substantially as set forth.

4. In a register for counting separate flat objects, the combination of a register, a cam mounted adjacent to said register and capable of swinging movement, a spring-pressed pressure-foot carried in the periphery of said cam and arranged to be engaged and operated by the sheets, and connections between said swinging cam and said register, substantially as set forth.

5. In a register for counting separate flat objects, the combination of a base, a register mounted in said base, a swinging cam I mounted in said base, a pressure-foot *h*, movably carried by said cam and arranged to be engaged and operated by the sheets, springs *k*, seated in said cam and normally keeping said pressure-foot at its extreme lowest position, and a connecting-rod *n*, between the cam I and the register, substantially as set forth.

6. In a register for counting separate flat objects, the combination of a base, a register mounted in said base, a lever H for operating said register, a counterbalance-weight on said lever, a swinging cam I mounted in said base, a pressure-foot *h* movably carried by said cam and arranged to be engaged and operated by the sheets, springs *k* seated in said cam and normally keeping said pressure-foot at its extreme lowest position, and a connecting-rod *n*, between the cam I and the lever H, substantially as set forth.

7. In a register, the combination of registering mechanism, a gong or bell mounted adjacent to said register, a cam *x* operated by the registering mechanism, an arm *t*, operated by said cam, and connections between said cam and the bell-hammer, substantially as set forth.

8. In a register, the combination of registering mechanism, a gong or bell mounted ad-

jacent to said register, a cam *x*, operated by the registering mechanism, an arm *t*, having a hole *v* and operated by said cam and a spring *r*, extending through the hole in said arm *t*, and carrying the bell-hammer, substantially as set forth.

9. In a register, the combination of registering mechanism, a gong or bell mounted adjacent to said register, a cam *x*, operated by the registering mechanism, an arm *t*, having a hole *v* and operated by said cam, a bearing *u*, in the register-case for said arm, and a spring *r*, extending through the hole in said arm *t*, and carrying the bell-hammer, substantially as set forth.

10. In a register for counting separate flat objects, the combination of a register, a cam adjacent to said register and capable of swinging movement, a movable pressure-foot carried in the periphery of said cam and arranged to be engaged and operated by the sheets, connections between said cam and said register, and means for adjusting said cam vertically, substantially as set forth.

11. In a register for counting separate flat objects, the combination of a register, a cam adjacent to said register and capable of swinging movement, a spring-pressed pressure-foot carried in the periphery of said cam and arranged to be engaged and operated by the sheets, connections between said cam and register, and means for adjusting said cam vertically, substantially as set forth.

12. In a register for counting separate flat objects, the combination of a base, a register secured to said base, an arm on said base having a recess therein arranged to engage with an element of the scoring, or other machine, a plate *a* for engagement with said element, and adjusting screw-bolts *F* in said arm, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

HENRY O. ERTEL.  
SAMUEL ERTEL.

Witnesses:

HUGH GILMORE,  
ADDISON CANDOR.