(No Model.)

C. C. FIELDS.

AUTOMATIC ALARM REGISTER.

No. 520,159. Patented May 22, 1894.

Fig. 1.

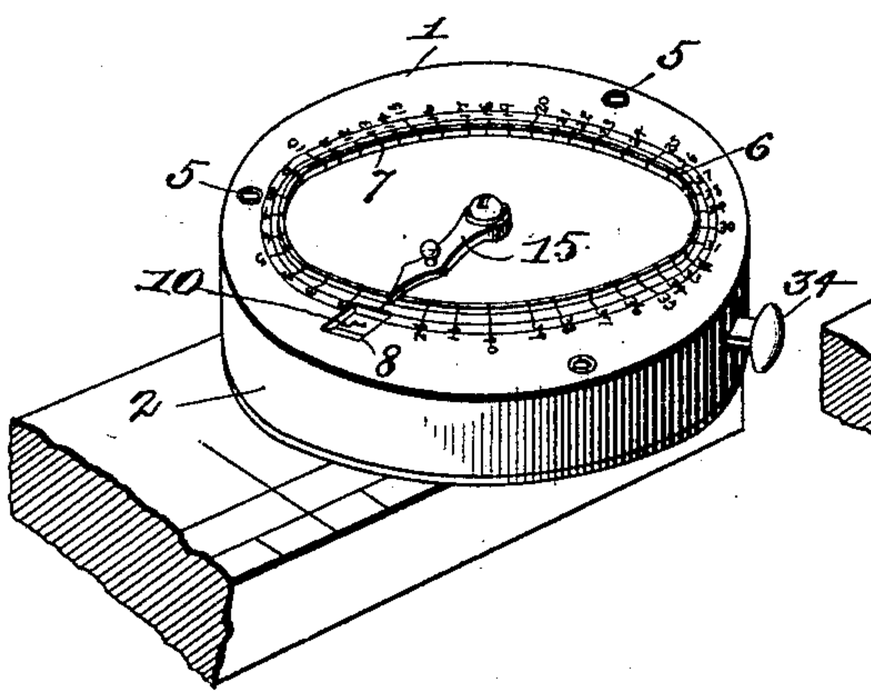


Fig. 2.

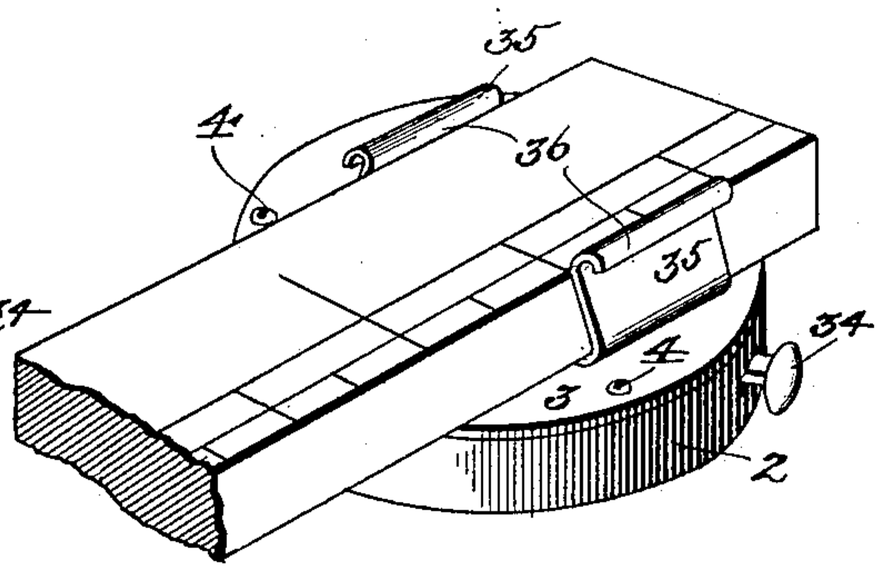


Fig. 3.

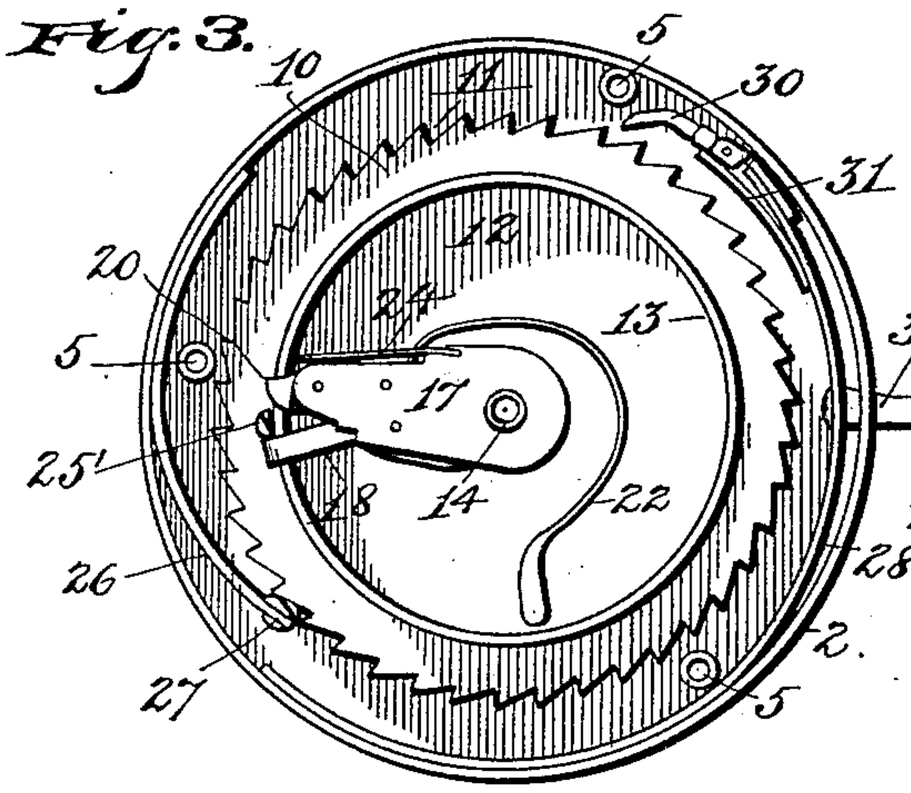


Fig. 4.

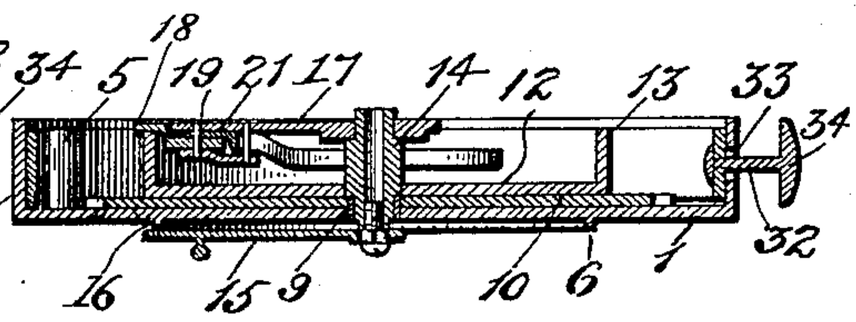


Fig. 5.

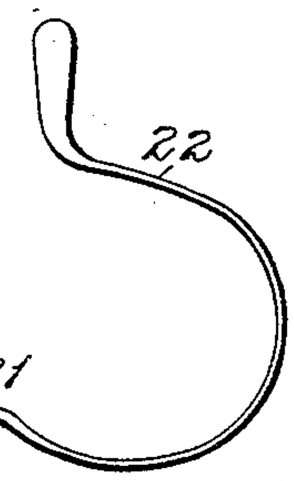


Fig. 6.

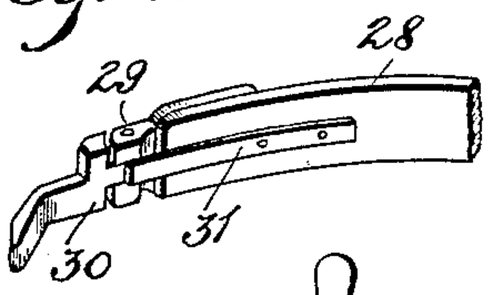
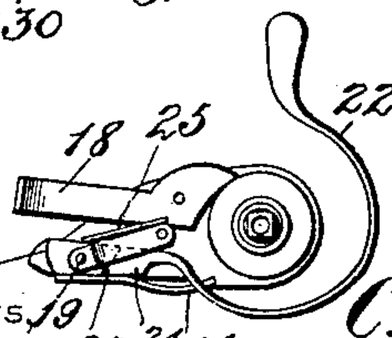


Fig. 7.



Witnesses

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CHARLES C. FIELDS, OF BRISTOL, TENNESSEE, ASSIGNOR OF ONE-HALF TO ABRAM D. REYNOLDS, OF SAME PLACE.

AUTOMATIC ALARM-REGISTER.

SPECIFICATION forming part of Letters Patent No. 520,159, dated May 22, 1894.

Application filed February 10, 1893. Serial No. 461,813. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. FIELDS, a citizen of the United States, residing at Bristol, in the county of Sullivan and State of Tennessee, have invented a new and useful Automatic Alarm-Register, of which the following is a specification.

My invention relates to improvements in registers; the objects in view being to provide a register of cheap and simple construction and consisting of few parts and adapted to be operated in connection with any mechanism, such for instance as printing-presses, or in fact any machine wherein it is desired to employ a register capable of being set so as to indicate when a certain number of acts have been accomplished.

My invention is especially adapted for use in connection with yard-sticks for use in making long measurements of carpets and fabrics of various kinds wherein it is desired to avoid accidental miscalculation which is now mentally carried on, thus reducing the calculation to a mechanical certainty and requiring no mental exertion upon the part of the operator to ascertain when he has measured off a certain predetermined quantity of yards or feet as the case may be.

With these objects in view the invention consists in certain features of construction hereinafter specified and particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a perspective view of a yard-stick, a register constructed in accordance with my invention being applied thereto. Fig. 2 is a reverse view illustrating the preferred manner of securing the register upon the stick. Fig. 3 is a plan view of the register, the back-plate being removed to expose the interior mechanism. Fig. 4 is a detail in transverse section of the register. Fig. 5 is a detail in perspective of the spring bell hammer. Fig. 6 is a detail of the operating-pawl. Fig. 7 is a detail in reverse plan of the trip-mechanism.

The same numerals of reference indicate the same or like parts in all the figures of the drawings.

In constructing the register I preferably make the same round, but it may be given any other external shape desired whereby it may be adapted for the various purposes for which it is intended. In the present instance I have illustrated the same in connection with a circular case consisting of a face 1 having an annular flange or surrounding wall 2 surrounding the same, and a back-plate or disk 3 conveniently secured in position through the medium of suitable screws 4 passed through perforations in the back-plate or disk and into internally-threaded posts 5, which extend from the inner surface of the face 1, all as shown in Figs. 2 and 3 of the drawings.

The face 1 is provided with an annular slightly raised rib 6, which is divided into degrees by shallow indentations or notches 7, which degrees indicate the unit of measurement, as for instance a yard or foot or it may be otherwise where it is desired to make measurements of great length. The degrees are numbered so as to be readily observable, and at the zero point a sight-opening 8 is formed in the casing.

In the center of the casing a perforation is formed, in which is mounted a short hollow shaft 9 fixed to the casing and upon the short hollow shaft there is mounted for rotation a disk 10 of such diameter as to extend beyond the sight-opening in the casing and consequently be exposed below said opening. This disk 10 has its upper face divided into degrees or units that correspond with those formed on the face of the casing and its periphery is provided with a series of teeth 11, which correspond with the degrees upon the face of the disk and consequently with those upon the face of the casing.

Arranged against the back face of the disk 10 is a disk-shaped bell 12, the same having an annular flange 13 and of less diameter than the disk 10. The center of the bell is provided with an opening in which is rigidly secured a hollow shaft or stud 14 which projects beyond each face of the disk and is mounted in the hollow shaft 9. The front extremity of this shaft is squared where it passes through and beyond the hollow shaft 9 and consequently beyond the face of the casing and there receives the indicating-hand or pointer 15 which is provided with a square-opening so as to receive the shaft and rotate therewith. The hand is provided upon its

under side in this instance with a shallow-rib 16 adapted to engage with the shallow indentations indicating the degrees upon the face of the casing, and is further provided with a nib by which it may be conveniently grasped and moved over the face of the casing. An arm 17 is mounted upon the inner end of the hollow-shaft 14 and extends radially therefrom to a point adjacent to the flange of the bell and from this arm there extends a projection or stop 18 which overlaps the flange of the bell.

Pivoted to the under side of the arm 17, as indicated at 19, is a trip-finger or lever 20, the same having its upper side recessed or cut away to receive the tail-end 21 of a spring-hammer 22, said tail-end being likewise pivoted to the arm 17 by the pivot 19. The rear end of the trip-lever or finger 20 forms a shoulder 23 so that, as will be obvious, when the lever is moved in one direction said shoulder will abut against the tail-end of the spring-hammer and thus oscillate said hammer upon the pivot while at the same time the said lever is free to move to a limited extent in the opposite direction without influencing said spring-hammer.

Flat springs 24 and 25 are secured to the edges of the arm 17 and bear against the edges of the tail-end of the spring-hammer in rear of the pivot-point 19 of the latter, so that the springs exert a tendency to maintain the trip-finger or lever 20 and the tail-end of the spring-hammer in alignment and the lever 20 in position beyond the edge of the bell, whereby it may be struck by a projecting post 25′ which is mounted upon the disk 10.

Secured to the flange 2 of the casing within the same is a spring detent 26, the same being provided at its free end with a rounded nib or pawl 27 that extends into the path of and engages the teeth 11 of the disk 10. This pawl serves to hold the disk to a limited extent against retrograde movement, but being rounded it will be seen that the disk may be rotated against the influence of the pawl, the said pawl riding over the teeth.

Secured to the flange 2 of the casing to one side of the spring detent is a spring lever 28, the same having its free end bifurcated (see Fig. 6) and having pivoted between its bifurcations as at 29 a curved pawl 30 whose operating end is beveled and adapted to engage with the teeth 11 of the disk 10. A flat spring 31 is secured to the lever and presses against the tail of the pawl, whereby the operating end of the latter is normally pressed inward and adapted to engage with the teeth of the disk. A thumb-stud 32 is mounted on the spring-lever and extends through a hole 33 formed in the flange 2, beyond which it is provided with a thumb-plate 34.

This completes the construction of the register, and its operation is as follows: If, for instance, it be desired to register a predetermined number of acts of any kind upon any machine or by hand, it is simply necessary to turn the indicating-hand to the degree corresponding with that degree upon the face of the casing at which point the small rib upon the under side of the hand will cause the same to become stationary. Now by pressing upon the thumb-stud either mechanically or manually as the case may be, it will be seen that at each pressure the spring-lever will be forced inward or toward the disk 10 and its pawl engage with a tooth of said disk thus causing the disk to move the distance of one tooth, which as before stated, will indicate one degree upon the face of the casing and will expose the number of teeth through the sight-opening in the casing. It will be seen that the bell remaining stationary and the disk 10 revolving will cause the post carried by the disk 10 to come in contact with the trip-finger or lever of the bell at the time that the post has arrived opposite the disk over which the indicating-hand is located, it being understood that the trip finger or lever 20 of the bell is directly in alignment with said indicating-hand, and thus will the bell be sounded and indicate that the number of acts, whatever they may be, have taken place.

Various changes in the details of my invention will readily suggest themselves to those skilled in this particular art, and I therefore do not limit myself to those herein shown, but hold that I may vary the same to any extent and to any degree within the knowledge of the skilled mechanic.

As before stated my invention is particularly adapted for use in connection with yard-sticks and other measuring devices of this character, and I have therefore illustrated such use in Figs. 1 and 2 of the drawings. To thus adapt the register I provide the back face or disk of the same with a clip-plate 35, the same being formed of spring-metal and having its ends upturned as at 36 and curled at the extremities to enable them to be readily introduced over the end of a yard or other measuring stick.

It will be understood that various other means may be provided for securing the register upon the stick, this being a simple form that has occurred to me as being convenient and not apt to mar the stick and permit of a ready application and removal when desired.

The utility of the device in connection with a yard or other stick will be at once apparent from the foregoing description taken in connection with the drawings and the introductory to the specification and as before stated such utility and advantages consist in the fact that instead of mentally counting each yard as measured the operator simply touches the thumb-plate having previously set the device to the number of yards to be measured and the instant that that number of yards has been measured the bell will sound the alarm and the operator will at once know that

the precise number desired has been measured which will be a mechanical certainty.

As before stated the application of the register to the yard-stick is only one of the very many that may be made, and I have herein illustrated such application, more for the purpose of illustration than anything else, though, as before stated it may be as well adapted for printing-presses, cloth-measures of various kinds, wall-paper measures, &c., all of which I deem as within the scope of my invention and as covered by the claims of the specification.

Having described my invention, what I claim is—

1. In a register, the combination with the casing having its front face divided into degrees, a perforation in the center of the face, a hollow stud located fixedly therein and extending rearwardly therefrom, a toothed disk mounted for rotation upon the stud, a pawl spring-pressed and adapted to be depressed into engagement with the teeth of the disk, a plunger for depressing the pawl, and a holding pawl, of a bell at the inner side of the toothed disk, a fixed shaft passing therethrough, and loosely through the hollow stud, a register-hand located fixedly upon the outer end of the shaft and adapted for travel over the face of the casing, a tripping mechanism carried by the inner end of the shaft, a hammer operated by the tripping mechanism, and a post extending from the toothed disk and adapted to operate the tripping mechanism, substantially as specified.

2. In a register, the combination with the casing whose face is divided into degrees and which is provided with a central opening, a hollow-stud extending inwardly and fixedly therefrom, a rotatable toothed disk carried loosely by the stud, and having an inwardly-disposed tripping-post, a bell, a shaft secured thereto and passed through and beyond the hollow stud, a register hand carried by the outer end of the shaft the same adapted to move therewith and over the face of the casing, of a pawl for operating the toothed disk, a plunger for operating the pawl, an arm projecting from the inner end of the shaft and having an extension extending into the path of the tripping-post, a beveled trip-pawl or lever pivoted to the arm, said pawl having one face recessed and provided with a shoulder, and extending at its outer end into the path of the tripping-post, a spring-hammer having a tail-piece at one end located in the recess and mounted upon the pivot of the pawl and in the path of its shoulder, and a flat spring secured to the arm and bearing against the edges of the tail-piece and trip-pawl opposite the point of pivot, substantially as specified.

3. In a register, the combination with the circular register-case, the face of which is divided into degrees and is provided with a central opening, and the sight-opening, a hollow stud extending from the central opening, a toothed disk mounted for rotation upon the inner end of the stud and having its inner face provided with indicating-numerals agreeing with the degrees upon the casing and in line with the sight-opening in the casing, an alarm-mechanism carried by the inner end of the shaft, a tripping-post for operating the same carried by the toothed disk, of the spring-holding pawl secured to the casing and having a rounded end engaging with the teeth of the toothed disk, the curved spring-arm also secured to the casing, a pawl loosely connected therewith a spring for elevating the pawl out of engagement with the teeth of the disk, and a plunger passing through the casing and resting upon the spring-arm, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

C. C. FIELDS.

Witnesses:
E. G. SIGGERS,
J. H. SIGGERS.