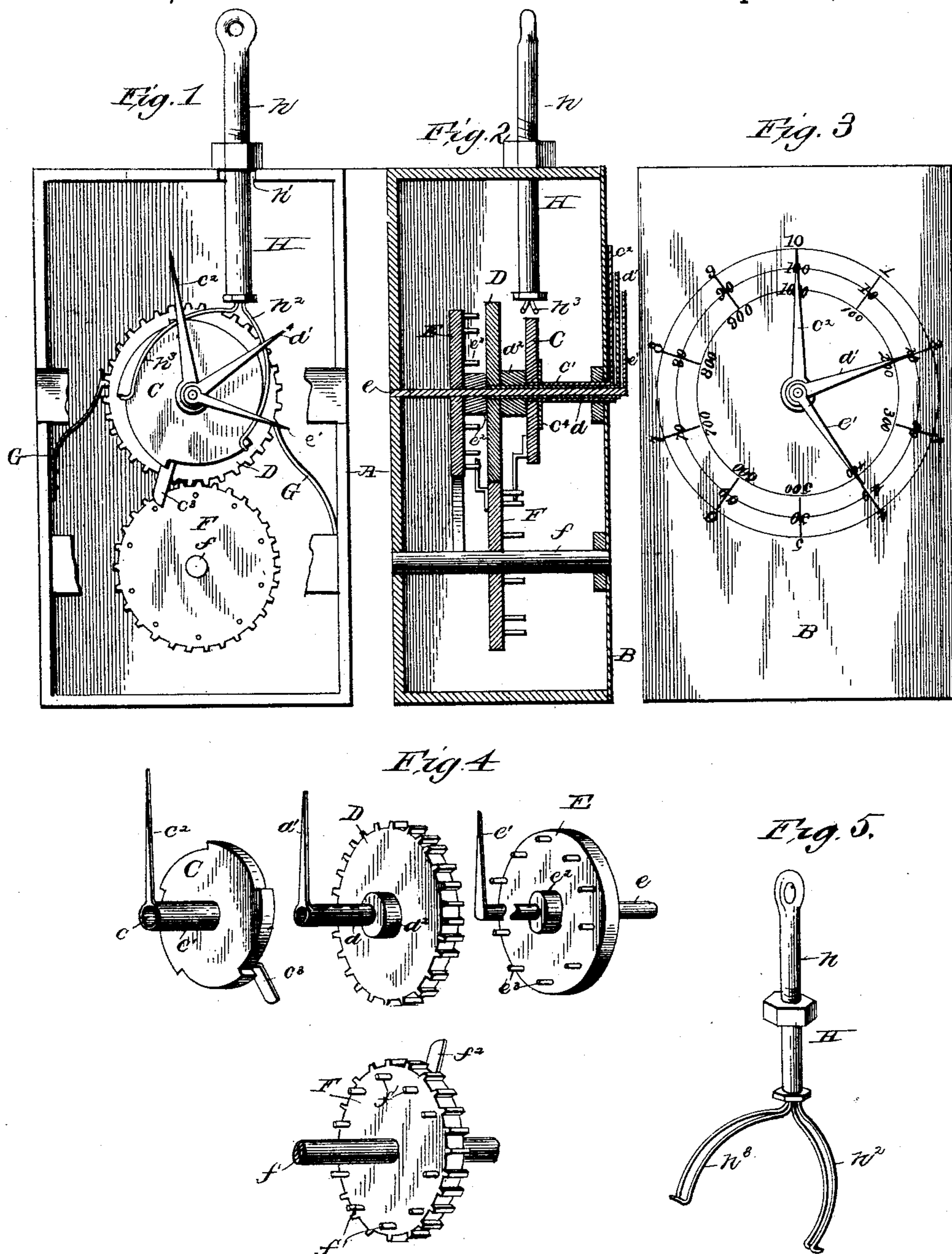


(No Model.)

J. A. & D. JAMES.  
REGISTER FOR GRAIN MEASURES.

No. 473,465.

Patented Apr. 26, 1892.



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# UNITED STATES PATENT OFFICE.

JOHN A. JAMES AND DAVID JAMES, OF COFFEYVILLE, KANSAS.

## REGISTER FOR GRAIN-MEASURES.

SPECIFICATION forming part of Letters Patent No. 473,465, dated April 26, 1892.

Application filed June 3, 1891. Serial No. 394,919. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN A. JAMES and DAVID JAMES, citizens of the United States, residing at Coffeyville, in the county of Montgomery and State of Kansas, have invented certain new and useful Improvements in Registers for Grain-Measurers, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to an improvement in registers for grain-measurers; and it consists in the certain peculiar features of construction and arrangement of parts more fully hereinafter described, and definitely pointed out in the claims.

The object of our invention is to provide an improved automatic registering device especially adapted for use in connection with grain measurers or weighers, which is very compact in its structure and precise in its operation. This object we accomplish by the construction illustrated in the accompanying drawings, in which like letters of reference indicate like parts in the several views, and in which—

Figure 1 is a front elevation showing the front of the casing removed. Fig. 2 is a central vertical section. Fig. 3 is an elevation of the dial-plate and hands or pointers. Fig. 4 is a detail perspective of the actuating-wheels, and Fig. 5 is a detail perspective of the escapement and governing spring.

In the drawings, A represents the casing, and B the dial-plate formed either integral therewith or separate. This dial-plate is circular and is formed with three concentric circles, in which numbers are placed, the first series running from zero to ten, the second series from ten to one hundred by tens, and the third series from one hundred to one thousand by hundreds.

C is a ratchet-disk, having an opening  $c$  in the center thereof and provided with a hub  $c'$ , on which is sleeved a hand  $c^2$ . On the opposite face of the disk and flush with the front face of one of the ratchet-teeth is secured a projecting arm  $c^3$ . The upper end of this arm is extended out to one side, so that it will escape the arm of the pawl passing over the wheel, as hereinafter described. Secured to the front face of the disk C and sleeved on the hub is a washer  $c^4$ .

D is a cog-wheel having an opening in the center thereof, in which is rigidly secured a hollow shaft  $d$ , which passes through the opening  $c$  of the ratchet-disk and on the end of which is sleeved a hand  $d'$  of a length less than the hand  $c^2$ . Sleeved on the shaft  $d$ , between the ratchet-disk and the cog-wheel D and secured to the latter, is a washer  $d^2$ .

E is a wheel rigidly secured on the shaft  $e$ , which is secured in suitable bearings on the front and rear of the casing. The forward end of the shaft  $e$  passes through the hollow shaft  $d$  and has secured thereto a pointer  $e'$ , which is of a length less than the length of the other two pointers. This wheel E also has a washer  $e^2$  secured thereto and which is sleeved on the shaft  $e$ .

$e^3$  are pins, preferably ten in number, secured at equal intervals on the face of the wheel E, near the periphery thereof.

F is a cog-wheel, similar to the cog-wheel D and meshing with the same, secured on the shaft  $f$ , which is journaled in bearings in the front and rear of the casing. At equal intervals around the face of the wheel F and near the periphery thereof is a series of pins  $f'$ , preferably ten in number. These pins are engaged by the projecting arm  $c^3$  of the ratchet-disk, the pins  $e^3$  being in turn engaged by the projecting arm  $f^2$ , secured rigidly on the rear face of the cog-wheel F.

G G are suitable flat springs secured at one end to the inside of the casing, the other ends engaging the wheels F and E at any suitable points, which act to prevent movement of said wheels when they are not actuated by the operating mechanism.

H is an escapement or pawl formed with the shank  $h$ , which extends up through a suitable opening  $h'$  in the top of the casing, and the curved spring-arms  $h^2$  and  $h^3$ . These spring-arms  $h^2$  and  $h^3$  are in the form of wire loops, the ends of which are bent up and adapted to fit over the periphery of the ratchet-disk C and engage the teeth thereon, as shown in Figs. 1 and 5. These arms are mounted in the shank, so that the lower end of the arm  $h^2$  will be below that of the other, and the shank is placed at a point to one side of the axis of the wheels, so that the arm  $h^2$  will be in contact with one of the teeth of the ratchet-disk, while the other arm is below the

ratchet-tooth. It will be understood that the pointers, in connection with the different wheels, operate around the dial-plate of the front of the casing.

5 The operation of our improved register is as follows: The shank  $h$  of the escapement H is connected with a suitable oscillating crank-arm or other means on the machine in connection with which our device is used. The  
10 movement of the shank  $h$  causes the ratchet-disk to operate through the arms  $h^2$  and  $h^3$ , which push the disk down on one side and lift it up on the other side as the shank is moved up and down. The rotation of the  
15 ratchet-disk C causes the rotation of the cog-wheel F, through the projecting arm  $c^3$  and the pins  $f'$  on the wheel F, with which it engages after it has completed its revolution, which in turn causes the revolution of the  
20 cog-wheels D, with which it meshes, and the wheel E, through the projecting arm  $f^2$  on the wheel F, and the pin  $e^3$ , the wheel E moving one space to every revolution of the wheel F. From the above description it will be seen  
25 that for every ten revolutions of the disk C the cog-wheels D and F revolve once, and for every ten revolutions of the cog-wheels D and F the wheel E is revolved once. Thus the pointer connected with the disk C, the cog-  
30 wheel D, and the wheel E count by units, tens, and hundreds, respectively, in their movement on the dial-plate.

As described, our device registers as high as one thousand; but we wish it to be understood  
35 that it can be made to register either a larger or smaller amount by slight changes in the sizes of the wheels and arrangement of the pins. When a certain number has been registered and it is desired to commence a new  
40 series, the device has to be reset, which can be easily accomplished by removing the pawl and turning the pointers back.

We are aware that many minor changes in the construction and arrangement of the parts  
45 of our device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of our invention.

Having thus described our invention, what  
50 we claim as new, and desire to secure by Letters Patent, is—

1. In a register, the combination, with the casing and dial-plate, of a ratchet-disk having  
55 an opening in the center thereof and a hub on one side, a pointer sleeved on the hub, a pro-

jecting arm on the opposite side of the disk, a cog-wheel having an opening in the center thereof, a hollow shaft rigidly secured in said opening and passing through the opening in the ratchet-disk, a pointer sleeved on the outer  
60 end of the hollow shaft, a wheel in the rear of the cog-wheel having an opening in the center thereof, a shaft rigidly secured in said opening and journaled in bearings in the front and rear of the casing, pins on the front face of the  
65 wheel near the periphery thereof, a pointer on the outer end of the shaft, a cog-wheel below the other cog-wheel and meshing with the same, a shaft journaled in bearings in the front and rear of the casing and upon which said cog-  
70 wheel is secured, pins on the front face of the cog-wheel near the periphery thereof, a projecting arm rigidly secured on the rear face of the cog-wheel, and a pawl engaging with the teeth of the ratchet-disk, substantially as de-  
75 scribed.

2. In a register, the combination, with the casing and dial-plate, of a registering mechanism within the casing, consisting of a ratchet-  
80 wheel formed with an arm near its periphery and a central hub, a cog-wheel mounted on a hollow shaft passing through the hub on the ratchet-disk, a wheel in the rear of the cog-wheel provided with a series of pins on its  
85 side, a shaft on which the same is rigidly mounted extending through the hub and hollow shaft on the outer wheels, bearings for the shaft in the casing, a cog-wheel below the other cog-wheel engaging the pins on the rear  
90 wheel, a vertically-movable pawl having arms engaging the opposite sides of the ratchet-wheel, and pointers on the outer ends of the hub, hollow shaft, and shaft, substantially as described.

3. In a register, the combination, with a  
95 casing, a dial-plate, and a ratchet-disk, of a pawl consisting of a vertically-movable shank located to one side of the axis of the disk, and curved spring-wire arms secured in the end of the shank, looped at their lower ends, and  
100 extending down on opposite sides of the ratchet-disk and engaging the teeth on the same, substantially as described.

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

JOHN A. JAMES.  
DAVID JAMES.

Witnesses:

JOHN W. CUBINE,  
W. D. LITTLEFIELD.