

E. C. BEECHER.
REGISTER.

Patented Mar. 8, 1892.

A diagram of a circular cross-section of a head. A probe, labeled 'e', is shown touching the inner surface of the head. A point on the opposite side of the head is labeled 'E'.

The diagram illustrates the two stages of the Calvin cycle. Stage 1 (left) shows the fixation of CO_2 (h) with RuBP (h^2) to form a 6-carbon intermediate (h^3), which then splits into two 3-carbon molecules (h^4). Stage 2 (right) shows the reduction of h^4 to glucose (H) and the regeneration of RuBP (h^2) from h^4 .

The diagram shows a circle with several concentric circles. A central point is labeled a . A point on the innermost circle is labeled a''' . A point on the middle circle is labeled a'' . A point on the outermost circle is labeled a' . The circles are drawn with solid lines, and the points are marked with small dots.

A diagram of a gear with a central hub. The outer gear teeth are labeled g^2 and the inner hub is labeled g .

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REGISTER.

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To all whom it may concern:

Be it known that I, ELMER C. BEECHER, a citizen of the United States, residing at Birmingham, in the county of Erie and State of Ohio, have invented a new and useful Register, of which the following is a specification.

My invention relates to an improvement in registers which are especially designed to be connected to the ordinary elevator of thrashing-machines to indicate and register the number of bags filled; and it has for its object to provide a simple device that will correctly tally the number of bags to any number desired; and it consists of a series of units, tens, and hundreds disks with interposed plates carrying the communicating mechanism, all arranged and combined in a new and novel manner, hereinafter more fully described, illustrated in the accompanying drawings, and specifically pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of a grain-tally constructed in accordance with my invention, seated within a suitable casing thrown open. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detail view of both sides of one of the tens or hundreds wheels. Fig. 4 is a similar view of the units-wheel. Fig. 5 is a detail in perspective of the gear-plate interposed between the units and tens disks. Fig. 6 is a detail view of the end plate.

Referring to the accompanying drawings by letter, A designates a cylindrical casing provided with a glass-covered opening *a*, and within which is placed the tally B. Upon the stationary shaft C, mounted within said casing and held securely therein by the plates *b* at each end thereof, taking into recesses located at each end of the said casing, is the revolving units or digits disk D, around the periphery of which are the units numbers from one to ten and loosely working upon said shaft. The said units-disk revolving upon the shaft C is provided with the flanges *d* and *d'*, the one to the right of the tally (designated by *d*) being provided with the ratchet-teeth *d*², formed on the inner periphery of the same, while the opposite flange is provided with a small section of teeth *d*³, and on the same side of the wheel is provided with a series of inwardly-projecting stop-pins *d*⁴, which are en-

gaged by a spring-pawl, hereinafter described, and which by tightly bearing upon said pins holds the disk stationary while the ratchet-teeth dog is traveling back over the same, as will be more fully set forth. An end plate E, mounted upon a hollow shaft F, operated by the crank *f*, is provided with a spring-actuated pawl *e*, that is designed to engage the ratchet-teeth on the inner periphery of the flange *d* and operate said units-wheel, which is held from turning backward with said pawl by the stop-pins *d*⁴, and only turns in a forward direction when the plate E carries the pawl *e* therewith in a forward direction, so that the said pawl engages the shoulders of said teeth, said hollow shaft being adapted to revolve freely upon the main shaft C, over one end of which said hollow shaft takes and is held steadily in its movement, as well as supporting the stationary shaft, by means of one of the end plates *b*, previously referred to. The tens disk or wheel G is also mounted upon the shaft C and provided with the flanges *g* and *g'*, the inner periphery of the flange *g*, facing the units-wheel, being provided with the teeth *g*², extending entirely around the same, while the inner periphery of the opposite flange is provided with a small section of teeth *g*³, corresponding to those on the units-disk.

Interposed between the units and tens disk is the stationary gear-plate H, provided with a projecting tongue *h*, that is adapted to be seated in the shouldered recess *a'*, located in front of the casing A, and is thus prevented from turning when the tally is in operation. The said plate is also provided with a short shaft *h'*, upon each end of which and on each side of the plate is fixedly mounted the small cog-wheels *h*² and *h*³, which are retarded in their movement and prevented from turning too much by means of the spring-pawl *h*⁴, mounted upon said plate and bearing upon one of said wheels. When the units-disk has made one revolution, or ten points, the small section of teeth strikes the cog-wheel adjacent thereto upon said plate and causes the same to turn and thus operate the wheel on the opposite side of the plate, which in turn, meshing with the cogs on the tens-disk, turns the same one-tenth. The plate H is further provided with the spring dog or pawl *h*⁵, that

is designed to engage the inwardly-projecting stop-pins on the units or digits wheel and thus form a ratchet device and regulate the movement of the same, so as to stop or
 5 prevent said units-wheel from turning backward under the friction of the pawl *e* as the same is turned back over the teeth to engage a new shoulder, as will be readily apparent.

The hundreds disk or wheel I, which is the
 10 third of the series, is similar in construction to that of the tens wheel or disk, and is provided with the side flanges *i* and *i'*, respectively, the inner periphery of the flange *i* being provided around its entire circumference with the teeth *i*², while the opposite flange
 15 on the opposite side of the wheel is provided with a small section of teeth *i*⁴. Interposed between this and the tens disk or wheel is another gear-plate K, also provided with a projecting tongue *k*, which is adapted to be seated in the
 20 shouldered recess *a*², also located in the front of the casing A. The said plate is also provided with the short shaft *k'*, extending through the plate and provided on either end
 25 on each side of the plate with the small cog-wheels *k*² and *k*³, fixedly mounted upon each end of said shaft on opposite sides of the plate and which are retarded and regulated in their
 30 movement by the spring-pawl *k*⁴, corresponding to that upon the plate between the units and tens disks, as described. Motion is communicated to the cog-wheel on this plate by
 35 means of the small section of teeth upon one of the side flanges of the tens-disk when it has made one revolution and engages the said cog-wheel, which in turn, meshing with the
 40 toothed periphery of the hundreds-wheel, revolves the same one-tenth of its circumference. This construction can be carried up to an indefinite number of disks or wheels provided
 45 around their outer periphery or circumference with a series of numbers and operated and arranged in the same manner described.

The operation of my invention is now
 45 thought to be apparent. The units-disk being turned to indicate each bag by the ratchet device located at one side thereof, shows the number through the glass at the top of the
 50 casing. When the same has made one revolution or has made ten indications, the small section of teeth on its inner flange communicates motion to the cog-wheel mounted within
 55 the plate interposed between the same and the tens-wheel, and the cog-wheel, also meshing with the inner toothed periphery of the tens-wheel, turns the same one-tenth of a revolution. When this wheel has made one revolution, the hundreds-wheel is caused to revolve in the same manner as the tens-wheel,
 60 and if there were a greater number of disks or wheels the operation would be precisely the same. The motion of the cog-wheels and the first wheel or disk is regulated, as described, by means of the spring-pawls and
 65 ratchet devices, all of which have been herein set forth.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. In a register, a stationary shaft, a series
 70 of indicating-wheels loosely mounted on said shaft and provided with side flanges having their inner peripheries continuously and partly toothed, respectively, stationary disks
 75 or plates also mounted upon said stationary shaft and snugly interposed between said wheels to allow the opposite toothed flanges to travel over the opposite faces of said plates, short shafts journaled in said plates and carrying upon each end, on opposite sides of the
 80 same, cog-wheels, projecting within said flanges and one of which meshes continuously with the teeth of one wheel, while the opposite cog-wheel upon the same shaft meshes at intervals with the section of teeth
 85 in the wheel upon the opposite side of said plate, and means for rotating said wheels, substantially as set forth.

2. In a register, a units-wheel provided on one side with a ratchet-operating device and
 90 with the side flange provided with a small section of teeth on its inner periphery and a series of concentric stop-pins projecting therefrom, a series of wheels succeeding the units-wheel, each provided with side flanges hav-
 95 ing their inner peripheries continuously and partly toothed, respectively, stationary plates or disks interposed between each disk or wheel, short shafts journaled in said plates and carrying upon each end, on opposite sides of
 100 the same, cog-wheels projecting within said flanges and one of which meshes continuously with the teeth of one wheel, while the opposite cog-wheel upon the same shaft meshes at intervals with the section of teeth in the wheel
 105 upon the opposite side of said plate, a spring-pawl secured to one of said interposed disks and adapted to engage said stop-pins to prevent the units-wheel from turning back, and means for rotating said wheels, substantially
 110 as set forth.

3. In a register, a units-wheel provided with side flanges, one of which is provided with a small section of teeth on its inner periphery, while the opposite flange is provided on its
 115 inner periphery with ratchet-teeth, a series of concentric pins located in one side of said disk, an end plate provided with a spring-pawl, engaging said ratchet-teeth and a hollow shaft and crank-arm, which operate said
 120 plate, a series of wheels succeeding the units-wheel and each provided with side flanges, one of which is toothed around its entire inner periphery, while the opposite one is provided with a small section of teeth, stationary plates
 125 interposed between each disk or wheel, short shafts journaled in said plates and carrying upon each end, on opposite sides of the same, cog-wheels projecting within said flanges, and one of which meshes continuously with the
 130 teeth of one wheel, while the opposite cog-wheel upon the same shaft meshes at intervals with the section of teeth in the wheel upon the opposite side of said plate, a spring-

pawl secured to one of said interposed disks and adapted to engage said stop-pins to prevent the units-wheel from turning back, a supplemental series of spring-pawls secured to
5 each of said plates and bearing against said cog-wheels to retard their movement, and means for rotating said wheels, substantially as set forth.

4. In a register, the combination, with a casing having notches in the front edge thereof
10 and a hinged cover having a glass opening therein, of a stationary shaft mounted longitudinally within said casing, a series of indicating-wheels loosely mounted on said shaft and
15 provided with side flanges having their inner peripheries continuously and partly toothed respectively, stationary disks or plates snugly interposed between said wheels and provided with outwardly-projecting tongues adapted to

take within said notches, which form stops to
20 hold said plates stationary, short shafts journaled in said plates and carrying upon each end, on opposite sides of the same, cog-wheels, one of said wheels meshing continuously with
25 the teeth of one wheel, while the opposite cog-wheel upon the opposite side of the same plate meshes at intervals with the section of
teeth in the wheel upon the said opposite side
30 of the plate, and means for rotating said wheels, substantially as set forth.

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

ELMER C. BEECHER.

Witnesses:

JOHN GARRY,
CONRAD SCHISLER.