No. 631,232. Patented Aug. 15, 1899.

W. SOBEY.

AUTOMATIC SPRING TRIP FOR CULTIVATOR SHOVELS.

(Application filed Feb. 17, 1899.)

(No Model.)

Fig. 1.

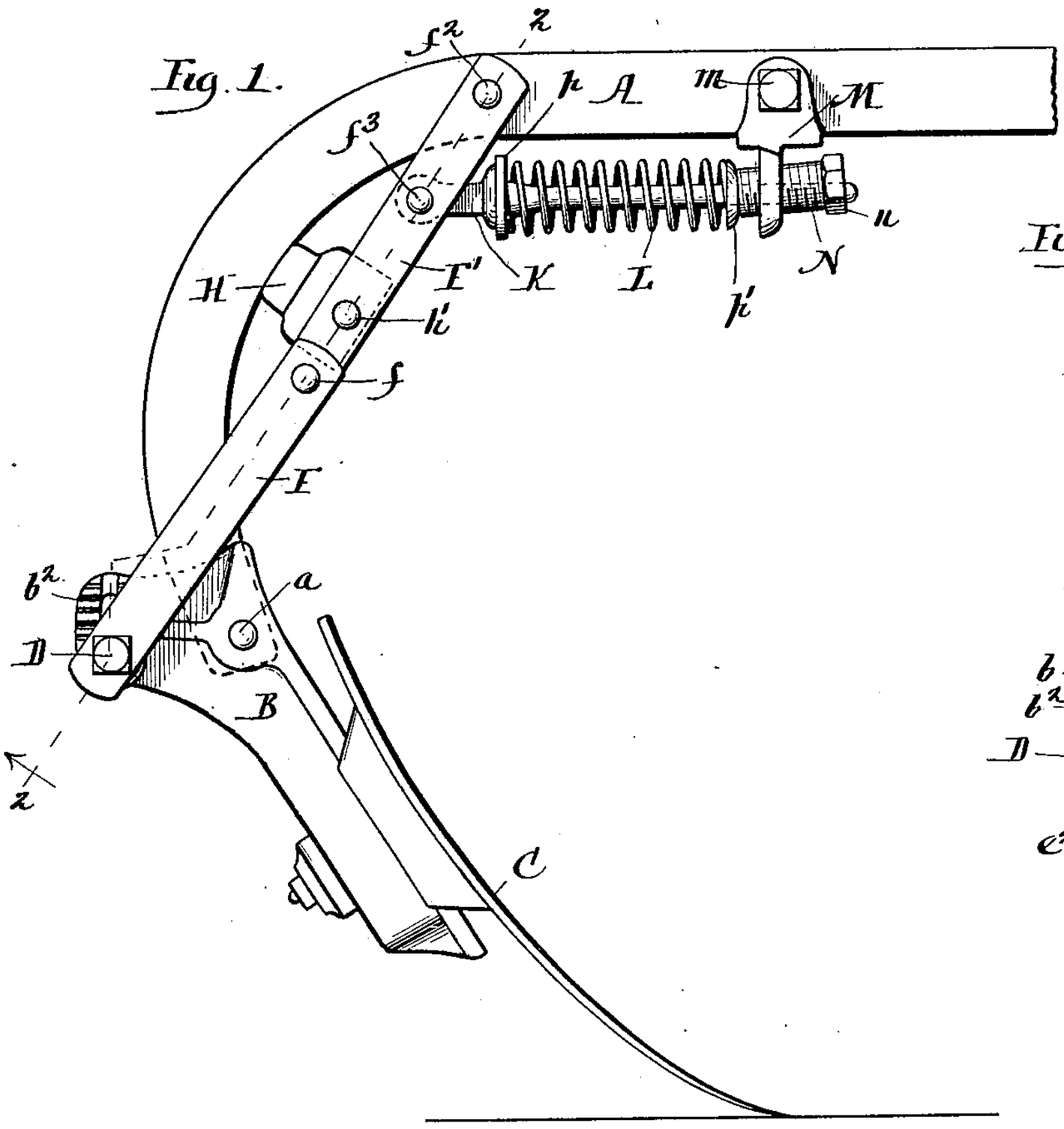


Fig. 2.

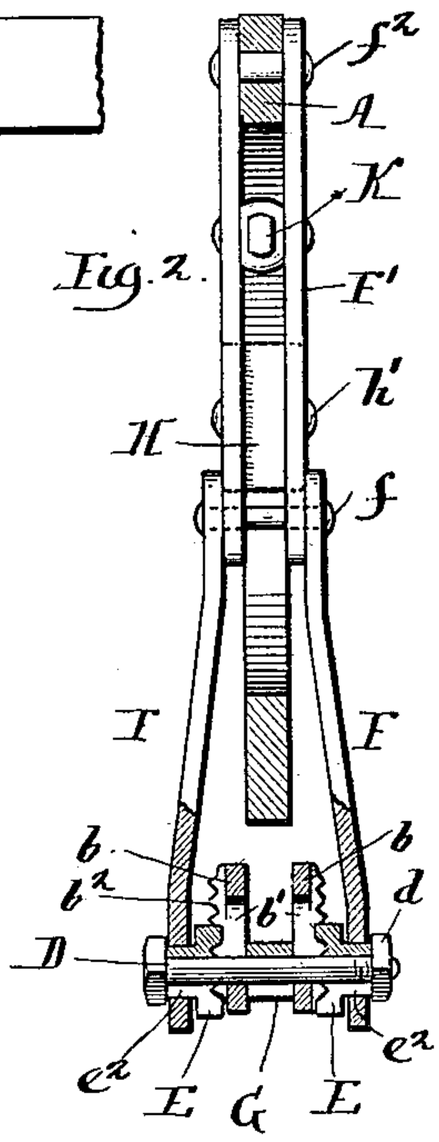


Fig. 3.

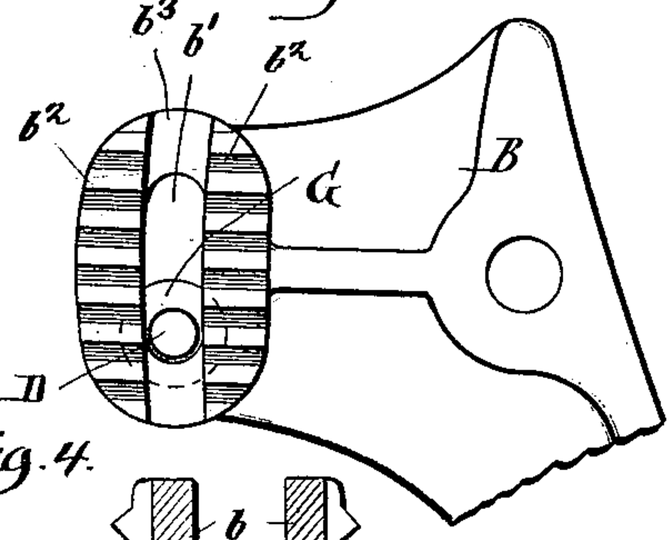


Fig. 4.

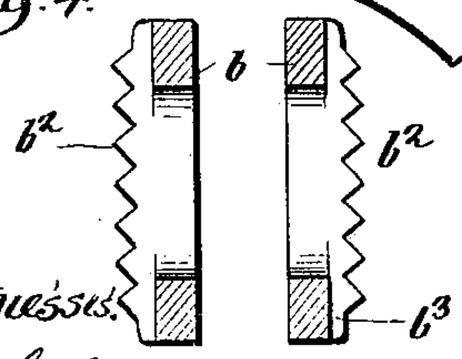


Fig. 5.

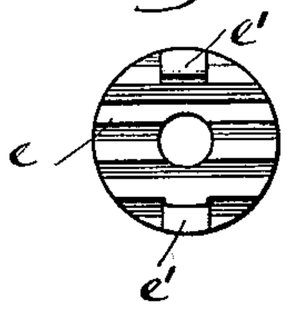
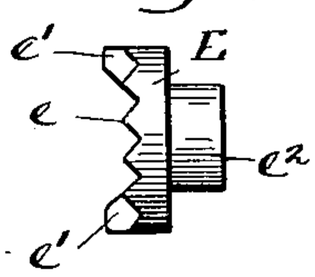


Fig. 6.



Witnesses:
Fred Gerlach
Alberta Adamick

Inventor:
Wm Sobey
By Peirce & Fisher
his Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM SOBEY, OF RACINE, WISCONSIN, ASSIGNOR TO THE J. I. CASE PLOW WORKS, OF SAME PLACE.

AUTOMATIC SPRING-TRIP FOR CULTIVATOR-SHOVELS.

SPECIFICATION forming part of Letters Patent No. 631,232, dated August 15, 1899.

Application filed February 17, 1899. Serial No. 705,767. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SOBEY, a resident of the city and county of Racine, State of Wisconsin, have invented certain new and useful Improvements in Automatic Spring-Trips for Cultivator-Shovels, of which the following is hereby declared to be a full, clear, and exact description.

The invention designs to provide an automatic spring-trip for cultivator-shovels, the same being capable of ready adjustment in setting the shovels at various angles for proper operation of the gangs under different conditions of the soil.

The nature of the improvement will appear in detail from the description following and be more particularly pointed out by the claim at the conclusion thereof.

On the drawings which accompany, Figure 1 is a side elevation at the rear of a cultivator-standard with the improved spring-trip for the shovel attached thereto. Fig. 2 is a sectional view on line 2 2 of Fig. 1; Fig. 3, an enlarged detail at the outer face of the heel of the shovel-sleeve; Fig. 4, a longitudinal sectional view at the mid-line of said bifurcated heel, Fig. 3, showing its outer serrated dual faces; Figs. 5 and 6, front and side elevational views, respectively, of the serrated washer engaging each face of the bifurcated heel of the shovel-sleeve.

As shown by the drawings, the lower rear end of the ordinary beam or standard A is snugly received between the lips of the bifurcated sleeve B, carrying the shovel C in familiar fashion, the sleeve B being pivoted at a to the standard. Back of pivot a the heel of sleeve B is generally forked, the dual heel extensions b having outer serrated faces b^2 with grooves b^3 and elongated slot b' cut across them. The slot b' and terminal grooves b^3 at each end thereof have their defining-walls struck on a circle from pivot a as a center.

Engaging the outer face of heel extensions b are the washers E, Figs. 2, 5, and 6, correspondingly corrugated, as at e, to fit the serrations b^2 of the heel-face and carrying guide-lugs e' to slide in the grooves b^3 of said heels. Hub e^2, at the external face of each washer E, loosely sets within a hole therefor made in the terminal of the parallel links F, constituting the lower member of the toggle connection. Bolt D passes through said links F at the washers E and also through slots b' of the sleeve-heel and as well through the intermediate spacer or thimble G. The bolt stoutly secures the parts in assigned relation according to the desired angle which the shovels are to assume in cultivating the soil.

The pair of toggle-links F embrace the shovel-standard A, being pivotally united above, as at f, to the companion set of toggle-links F'. Said parallel links F' also receive the shovel-standard between them and pivot thereto near the upper terminals, as at f^2. Stop-blocks H, secured by rivets or the like at h' between the links F', abut against the confronting edge of the shovel-standard to determine the location of the toggle mechanism when the parts have assumed the position proper for quick response in "breaking joint" should the shovel encounter any unusual obstruction.

Here shown pivotally secured between toggle-links F' at a point f^3 beneath the standard A is the tension-rod K, which extends forward and passes loosely through an adjusting-nut N, threaded to a fixed lug M, dependent from standard A. Coil-spring L encircles rod K and is retained between terminal washers p p', carried on said rod. By applying a wrench to the head n of nut N spring L can be distended or relaxed at will to vary the pressure exerted thereby on toggle F F' in resisting the thrust of the shovel when its sleeve B tends to turn about pivot a.

A glance at Fig. 1 shows the toggle-pivots f^2 f to be nearly alined with the pivot-bolt D. This relation must be nicely maintained if the trip off is to occur neither prematurely nor tardily; but when shovel C is reset at a different angle, as often occurs, to adapt the machine to various conditions of the soil the toggle-pivots f^2 f become more or less disalined from bolt-pivot D. This change may render the "trip-off" action either too sensitive or else too sluggish. If too sluggish, the shovel mechanism may be broken. If too sensitive, the shovels are thrown out by minor obstacles.

To correct the difficulty named, some forms of prior machine provide for a readjustment

of stop-block H; but according to the present improvement no such change in the position of the stop-block, always calling for nicety of skill, need be resorted to. The variation in angle for shovel C is effected by loosening the pivot-bolt D. Thereupon if sleeve B be turned about its standard-pivot *a* the serrated heel extensions of said sleeve describe an arc from pivot *a* as a center. The serrations b^2 on the heel-faces and the confronting serrations *e* on the companion washers E admit of a minute readjustment of the parts while guide-lugs e' travel in grooves b^3 to insure the place of bolt D always at a fixed distance from pivot *a* throughout. Within the requisite limits of readjustment necessary in practice the changes noted still permit the toggle-links to realine themselves, preserving the desired relation with pivot-bolt D, which obviously keeps the trip-off action at about the same degree of sensitiveness under all conditions.

The details of structure can be varied according to the mechanic's skill without departure from the invention. Thus the tension-spring L can be located over instead of beneath the standard A, it being merely requisite to prolong toggle-links F′, so that their ends shall extend above said standard, and to reverse the lug M from its dependent position, while spring L would remain mounted, as now, between said parts, but be arranged horizontally over shovel-standard A.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In automatic trips for cultivator-shovels, the combination with the usual beam or standard, the toggle-links pivoted at their upper end thereto, and the reaction-spring for said links, of the shovel-sleeve pivotally united to the standard-shank and having a serrated rear heel with slotted groove therein defined from such pivot, the correspondingly-corrugated side washer carried at the lower terminal of the toggle-links to adjustably engage the sleeve-heel and the cross-bolt passing through said heel and washer to join them in set relation with the links, substantially as described.

WILLIAM SOBEY.

Witnesses:
HENRY MITCHELL WALLIS,
ROBERT EARL BUSHELL.