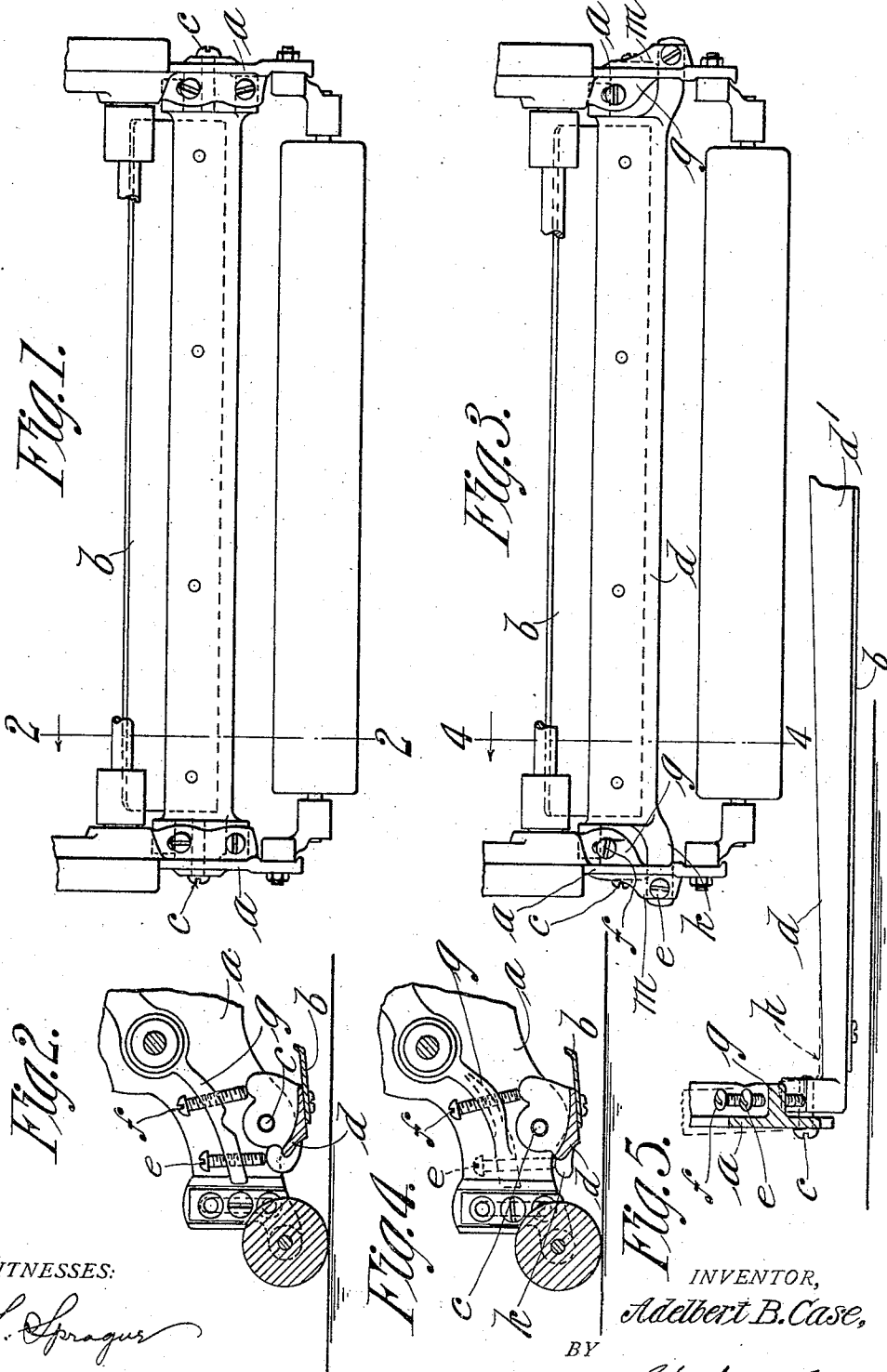


A. B. CASE.
LAWN MOWER.

APPLICATION FILED MAY 26, 1909.

940,854.

Patented Nov. 23, 1909.



WITNESSES:
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LAWN-MOWER.

940,854.

Specification of Letters Patent.

Patented Nov. 23, 1909.

Application filed May 25, 1909. Serial No. 498,165.

To all whom it may concern:

Be it known that I, ADELBERT B. CASE, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Lawn-Mowers, of which the following is a specification.

This invention relates to lawn mowers and the object thereof is to provide means to support the stationary knife of the machine in such manner that when the securing means for said knife are applied thereto to lock it in a certain adjusted position, the knives can not thereby be sprung out of line.

In lawn mowers as at present generally constructed within the knowledge of applicant, the securing means for the stationary knife are so applied thereto as to cause it to spring, a defect in construction which is entirely overcome by the invention forming the subject matter of this application.

The invention is fully illustrated in the accompanying drawings, in which the old and the new constructions are shown to more clearly point out the advantage of the new.

Figure 1 is a top plan view of the rear end of a lawn mower showing the stationary knife hung on trunnions in the usual manner and the securing devices for the knife applied thereto in the usual way. Fig. 2 is a sectional elevation on line 2—2, Fig. 1, showing the location of the securing means on the inner side of the side frame, which is the ordinary construction. Fig. 3 is a plan view similar to Fig. 1 but having the invention applied thereto showing a part of the side-frames of a lawn mower and a stationary knife hung between them on trunnions, a part of the knife support extending under the frames. Fig. 4 is a sectional elevation, like Fig. 2, and shows the securing means for the knife located on opposite sides of the side frames, the plane of the section being on line 4—4, Fig. 3. Fig. 5 is a rear elevation of one of the side frames (of a lawn mower as generally constructed, partly in section) and one end of the stationary knife, and showing, in dotted lines, the position assumed by the side frame and the ends of the stationary knife when the securing means are applied thereto on one side of the frame only.

Referring to the drawings forming part of this application, the side-frames are indicated by *a*, *a*, the stationary knife by *b*, the

trunnions on the ends of the knife-bar by *c*, the knife bar by *d*, and the securing means consisting of two screws by *e* and *f* which screws pass through threaded holes in a web *g* cast on the side of the side frames *a* at about right angles thereto.

In the construction of lawn mowers it is necessary, as well understood, that the stationary knife *b* should be so constructed as to permit the cutting edge thereof to be adjusted toward and from the circular path described by the edge of the wiper blades to the end that the latter may lightly brush over the edge of the stationary knife; and to this end the stationary knife *b* is rigidly secured to the knife-bar *d*, each end of which is provided with a trunnion *c*, which is seated in a proper bearing in the side-frame *a*.

As generally constructed, the web *g* is cast on the inside of each of the side frames and extends out over the end of the knife-bar *d* in such manner that the two screws *e* and *f* may be inserted in the threaded holes in the web and be screwed down to a bearing against the ends of the knife-bar in the manner shown in Figs. 1 and 2,—one of these screws bearing against the bar in front of, and the other at the rear of, the trunnion. By screwing down on one of these and loosening up on the other, the knife and knife bar may be oscillated on its trunnions to adjust the cutting edge thereof in the manner described; and when said adjustment is effected, both screws are set down with sufficient force to lock the bar in position.

For the purpose of holding the stationary knife *b* rigidly so that it may not be deflected in the middle, when subjected to severe duty, the knife-bar *d* is trussed longitudinally, as shown in Fig. 5, by casting a web *d'* on the back side thereof which is highest at the center thereof and tapers from thence down toward the ends. This necessary construction of the knife-bar is responsible for the fact that when the two screws *e* and *f* are set down tightly to lock the bar in an adjusted position, the side frames *a* are sprung outwardly, as shown in dotted lines in Fig. 5, thereby incidentally subjecting the trunnions to a severe transverse strain in the vertical plane, and each end of the knife-bar being less resistant to flexure than the center, the said ends of the knife-bar are sprung up to such a degree that if the knife-

bar were ground to a perfectly straight edge, horizontally, and the wiper blades moved in a true cylindrical path, the ends, only, of the wiper blades would touch the knife *b*, if the edge of the latter were swung up into the path of rotation of said blades. This fact is so well known and recognized that when the stationary knives *b* are ground, the central part thereof, longitudinally, is left a trifle higher than the ends of the knife, whereby the deflection of the ends of the knife and bar, as shown by the dotted line *h*, Fig. 5, is compensated for, and when the knife *b* is adjusted in proper position and tightly secured by means of the screws *e* and *f*, its edge will lie practically in a true horizontal plane, to the end that the wiper blades may have an unbroken contact therewith from one end to the other. This condition subjects the manufacturer of lawn mowers to a serious inconvenience which is entirely obviated by the application of the present invention to lawn mower construction.

In carrying out this invention, (reference being now had to Figs. 3 and 4) the knife and knife-bar and the trunnions on the latter are all made in the usual manner, as described above, but an arm *k* is cast on each end of the knife-bar and extends about in line with the rear edge thereof out under, and beyond the side frames *a*.

The web *g* is provided on the inside of the frame with one screw *f*, only, and another web *m* is cast on the outside of the frame to take the screw *e*,—the web *m* being located over the outer end of the arm *k* to the end that when the screws *e* and *f* are set down to lock the knife-bar in its adjusted position, the thrust against the trunnion is applied equally thereto on opposite sides of the frame, whereby no distortion or deflection of the frame from its normal position is possible, and consequently no deflection of the knife-bar occurs, and it becomes possible, in the manufacture of the machine, to grind the knife-bar to a true, straight edge and makes it unnecessary to use more than ordinary care in the adjustment of the knife-bar to the wiper blades of the cutter. It must be borne in mind in this connection that in the majority of cases, these machines are put into the hands of men who are relatively unskilled in nice mechanical adjustments, and

it is therefore a great advantage to the manufacturer to eliminate such adjustments as far as possible.

Where the deflection of the knife-bar and the side frames had to be taken into account, it was not possible to so grind the stationary knife that it could be adjusted to the edge of the wiper blade without the exercise of more mechanical skill than is usually found among those who use lawn mowers. This, of course, is obvious, since one knife-bar would spring a little more than another under the same conditions of stress. Therefore, in adjusting such a bar it often became necessary, in order to get a continuous contact in the cutting edges of the wiper blades and the knife, to set up one end of the bar perhaps a little more than the other. In other words, it required some mechanical sense, whereas, by the use of the present construction to establish a brushing contact, which is all that is required, when the knife *b* is made with a true straight edge, it is very easily effected, and the question of deflection of the knife or side frame is eliminated.

What I claim is:—

1. In a lawn mower, side frames provided with bearings, a knife-bar pivotally supported in the bearings in the side frames, and adjusting devices for the knife-bar located on opposite sides of each side frame, whereby the actuation of said devices will not effect the lateral displacement of said frames.

2. In a lawn mower, side frames provided with bearings therein, a knife-bar having a trunnion at each end seated in said bearings in the side frames, adjusting screws on opposite sides of each side frame and bearing on the knife-bar on either side of the axial center of said trunnions.

3. The combination with the side frames of a lawn mower, of a knife-bar pivotally supported therein, a part of said bar extending beneath the frame, and adjusting screws on the frame to bear on the knife-bar, one on the inside of the frame and one on the outside, and located respectively in front of and in the rear of the pivotal support of the bar.

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Witnesses:

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