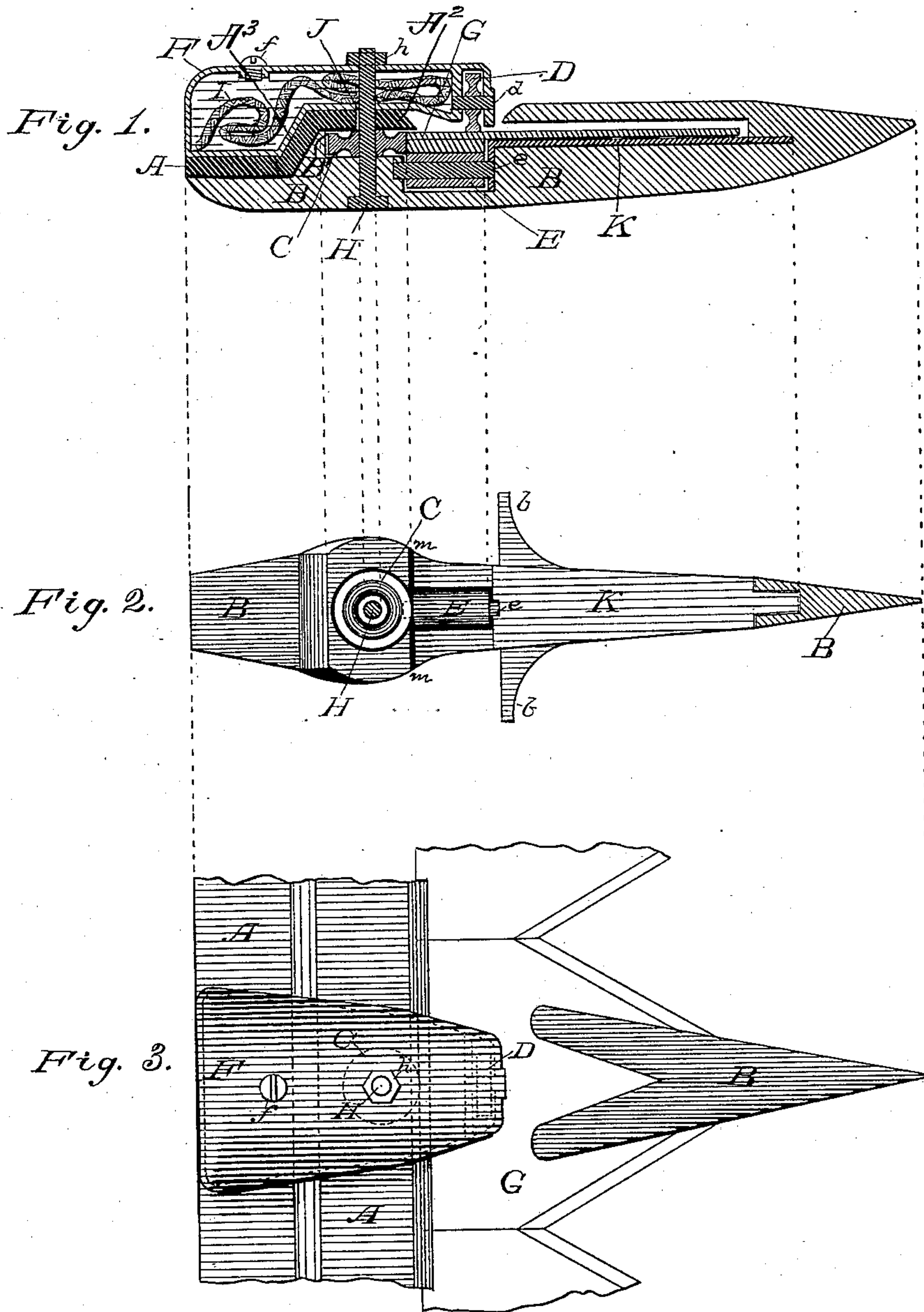


(No Model.)

H. R. ALLEN.  
CUTTING APPARATUS.

No. 304,686.

Patented Sept. 9, 1884.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

HORACE R. ALLEN, OF INDIANAPOLIS, INDIANA.

## CUTTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 304,686, dated September 9, 1884.

Application filed November 20, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE R. ALLEN, of Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Cutting Apparatus for Harvesters; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to improvements in the cutting apparatus of harvesters, the object being to overcome the ordinary sliding friction between the finger-bar, the guard-fingers, and the cutter-bar; and it consists in providing anti-friction devices for all the bearing-points of the cutter-bar; also, means to prevent the clogging of the sickle, and convenient means for lubricating the anti-friction rollers.

The invention is illustrated in the accompanying drawings, in which Figure 1 is a vertical section taken lengthwise of one of the guard-fingers. Fig. 2 is a plan view of one of the guard-fingers and ledger-plates, showing the rear and lower rollers, the cutter and finger bar being removed. Fig. 3 is a plan of a portion of the finger-bar, showing the top of the lubricator, and also the sickles and one of the fingers.

Throughout the drawings, A represents the finger-bar; B, the guard-fingers; G, the cutter-bar; G', the knives, and K the ledger-plates. The finger-bar A is rolled from a plate of iron or steel into the shape shown in cross-section in Fig. 1, forming a base-plate, A', an overhanging top plate, A<sup>2</sup>, and an inclined connecting-plate, A<sup>3</sup>. The fingers B are secured to the bar A by bolts H, which pass through the overhanging portion A<sup>2</sup> of such bar. In each finger is formed a circular recess, B', Figs. 1 and 2, in which is journaled a roller, C, the bolt H forming the pivot upon which the roller turns. The roller projects forward slightly beyond the shoulders m, Fig. 2, so as to bear against the cutter-bar and sickle when they are in position, as shown in Fig. 3. The cutter-bar is of ordinary construction and operates in the usual manner in connection with the ledger-plates K.

Instead of the ordinary sliding contact between the sickle-bar and the fingers, I form a square recess in each finger, Fig. 2, directly

under the cutter-bar G. Within the space thus formed are journaled rollers E, upon which the cutter-bar rests and reciprocates. Each roller E is journaled on a pin, e, which is held at the rear end by a recess in the finger, and at the other by an opening in a flange of the ledger-plate, turned down over the edge of the recess in which the roller is placed. The pin e, besides forming a support for the roller, also holds the ledger-plate in position, dispensing with the screw-fastening commonly employed.

In order to automatically lubricate the bearings of the anti-friction rollers, I have mounted upon the finger-bar oil cups or reservoirs F, Fig. 1. Each reservoir is made of sheet metal, with a bottom shaped to fit the upper surface of the finger-bar, to which it is secured by the bolt H, before described. The reservoir is filled through a hole in the top, closed by a screw-plug, f, and has an outlet-orifice, J, extending along the bolt H, and leading the oil to the bearing of the roller C. A wick, I, is preferably placed in the reservoir to absorb the oil, prevent its too rapid escape, and conduct it from the lower portion of the reservoir to the point of discharge. In the front part of the oil-cup is a recess, in which is journaled upon a pin, d, a roller, D, which bears upon the upper surface of the sickle and aids to hold it in place.

In the cutting apparatus ordinarily used there is a tendency, in operating, to crowd the sickle-bar back against the finger-bar, and also to give it an upward thrust. The effect of this, where there are plane surfaces and sliding friction, is to cause the sickle-bar to bend and clog. My method of interposing bearing-rollers between the plane surfaces ordinarily in contact reduces the friction and tends to prevent clogging. This latter result is also attained by causing the finger-bar to project forward over the sickle-bar, as shown in Fig. 1.

I may use a separate set of rollers and an oil-cup for each finger, or one for every other finger, or may place them at different distances apart, and use any number that will accomplish the best results.

Having described my invention, I claim—

1. The combination, with the finger-bar, the guard-fingers, and the cutter-bar, of a series

of horizontal rollers pivoted between the finger-bar and the fingers, and pivot-bolts H, passing through said finger-bar and fingers, substantially as described.

5 2. In a reaper or mower, the combination of the finger-bar, the guard-fingers, the rollers C, the bolts H, and the oil-cups, substantially as described.

10 3. The combination, with the guard-fingers and rollers C E, journaled in separate recesses therein, of the sliding cutter-bar and a bearing-roller, D, journaled above the said cutter-bar independently of the guard-fingers, all substantially as described.

15 4. In a reaper or mower, the combination of the recessed guard-fingers, the sickle-bar,

and the rollers E, journaled in said recesses, substantially as described.

5. The combination of the recessed guard-fingers, the sickle-bar, the rollers E, and the flanged ledger-plates, substantially as set forth. 20

6. The combination of the supported oil-cups, the rollers D, and the sickle-bar, substantially as set forth.

7. The combination, with the finger-bar 25 having the elevated overhanging flange A<sup>2</sup>, of the fingers having circular recesses, the rollers C, and the sickle-bar.

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Witnesses:

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