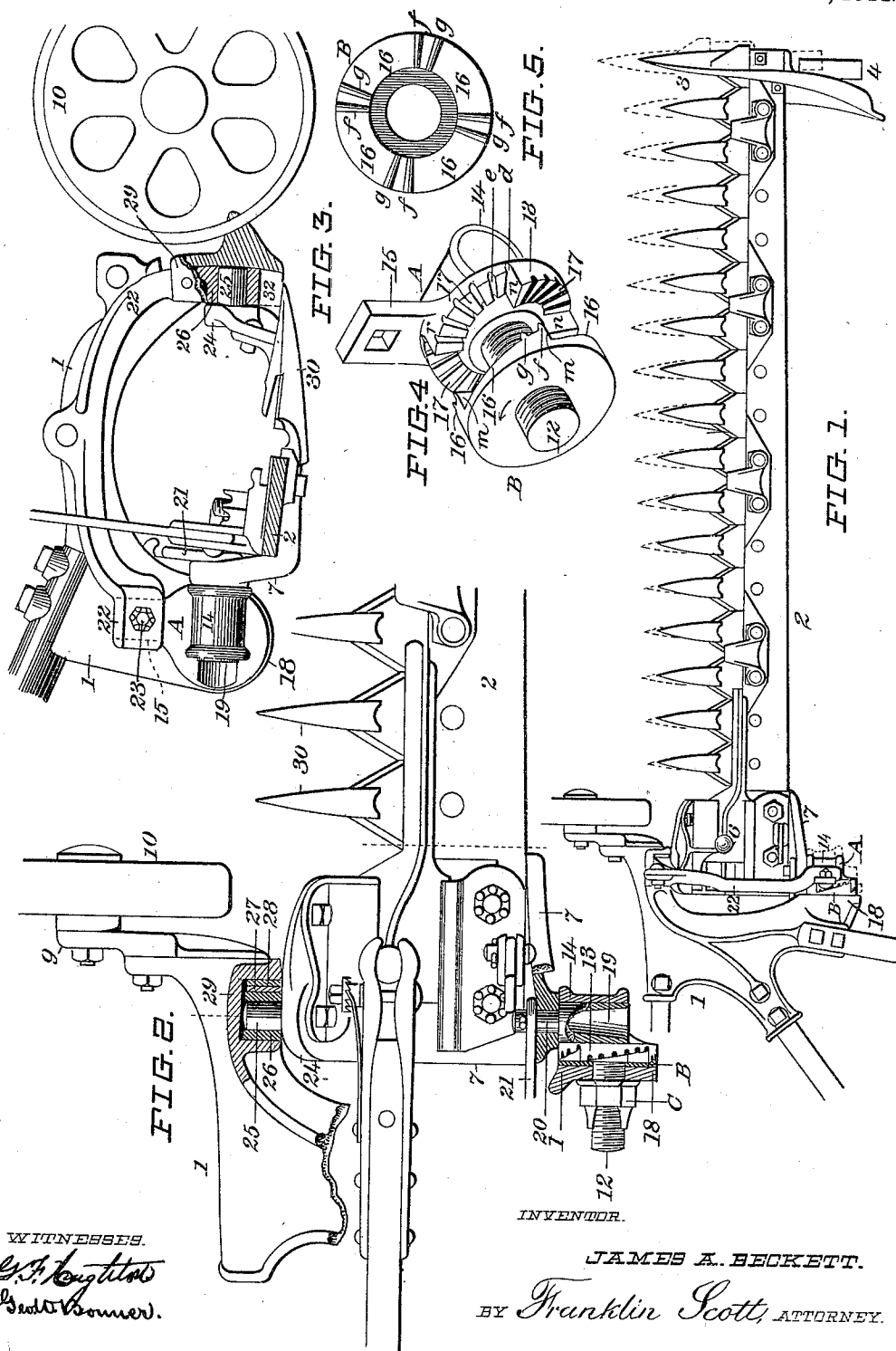


J. A. BECKETT.
HARVESTING MACHINE.
APPLICATION FILED AUG. 24, 1908.

1,004,843.

Patented Oct. 3, 1911.



WITNESSES.
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UNITED STATES PATENT OFFICE.

JAMES A. BECKETT, OF HOOSICK FALLS, NEW YORK, ASSIGNOR TO WALTER A. WOOD MOWING AND REAPING MACHINE COMPANY, OF HOOSICK FALLS, NEW YORK, A CORPORATION OF NEW YORK.

HARVESTING-MACHINE.

1,004,843.

Specification of Letters Patent.

Patented Oct. 3, 1911.

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To all whom it may concern:

Be it known that I, JAMES A. BECKETT, of the village of Hoosick Falls, in the county of Rensselaer and State of New York, have invented certain Improvements in Harvesting-Machines, of which invention the following description, in connection with the accompanying drawing, constitutes a specification.

The invention relates to means for effecting special adjustment of the finger bars of mowing and reaping machines with reference to their horizontal angular relation with the pitman shafts as well as with the direction of the line of advance of the machines.

In most mowing machines the finger bar is hinged to a hanger which is a part of the rigid frame of the machine, so that it may be folded up for convenience in transportation, or lifted as in passing over an obstacle. When these hinge connections become worn or loose from long service there is a growing tendency for the outer end of the finger bar to be forced backwardly out of a position which is perpendicular to the line of advance of the machine as well as out of a position at right angles with the pitman shaft, when the machine in operation engages a heavy crop of grass or grain. Hence it has been found desirable to provide some means for setting the outer end of the finger bar somewhat in advance of a line perpendicular to the axis of the pitman shaft before putting the machine in operation under conditions which would cramp the finger bar backwardly as above mentioned, so that when the machine is normally at work the resistance offered by the cutting of the crop will force the cutting apparatus back into its correct operative position.

The invention is fully illustrated in the accompanying drawing wherein—

Figure 1 shows a plan view of the cutting apparatus of a mowing machine with the invention embodied therein. Fig. 2 is an enlarged plan view of the main shoe and its connections in which the bearings for the shoe are seen in horizontal section. Fig. 3 is a side elevation of the main shoe and some of its attachments. Fig. 4 is a perspective view of the rear main shoe bearing and shows the adjusting cam washer and its counter-

part on the bearing. Fig. 5 is a face view of the cam washer.

The yoke which forms a part of the frame structure is shown at 1. It has a rear downward projection or bracket 18, which is bored to receive the screw-stem 12, Fig. 2, of the rear main shoe bearing A¹⁴. It also is provided with an open vertical slideway 29 in which the front bearing 26 can be moved perpendicularly. The bearing 14 is provided with an upstanding arm 15 with which the bail 22 is connected by the bolt 23 so that the two parts are firmly locked together. The front end of this bail is fitted to enter and slide in the slideway 29 and is bored at 32 to receive the journal stud 25 of the main shoe 7 having an extension 5 and pivoted at 6 to the member 8 of the frame. 2 is the finger bar, 30 the guard fingers, and 3 and 4 the front and rear portions respectively of the end shoe for supporting the finger bar. 10 is a portion of one wheel broken away and journaled at 9 to the main frame section 1. The rear side of this shoe is provided with a journal stud 19 which is carried in the journal bearing 14 as seen in Fig. 2.

The rear bearing 14, arm 15 and screw 12 are here shown as an integral piece. Behind the bearing 14 and concentric with the screw 12 is a stepped cam-disk 13, Fig. 4, the working face of which is designed with a plurality of cams 17, 17, 17, 17, extending in from its margin, and each of which is traversed by radial grooves like those marked *e* and *d*, which grooves are equally spaced. To cooperate with these concentric stepped cams a stepped cam washer B is provided the inner working face of which is designed as a counterpart of disk 13. It has the same number of cams the working faces of which 16, 16, 16, 16, parallel their counterparts 17, 17, 17, 17 of cam disk 13. On the highest part of each cam 16 are one or more radial ribs *g*, and *f*. These are spaced to engage any corresponding grooves *e*, *d*, of disk 13. When the disks are closed together so that ribs *g* and *f* enter grooves *e* and *d* the cam faces of the opposing disks contact, but if the washer cam B is rotated in the direction of the arrow the disks will be separated a slight distance. The greatest limit of such separation is determined by the height of the shoulders

n, n, m, m, of the cams. Thus it appears that by rotating the washer cam in contact with the disk cam 13 the two may be separated to the extent of the height of the shoulders *m, n*. The assembled parts appear as in Fig. 2, that is to say, the washer cam B is slipped over the screw stem 12 which is then passed through the arm 18 of the hanger 1 and the whole is drawn up firmly by the nut C which is screwed up firmly.

In assembling the parts the journal stud 25 is entered in its bearing 26 of the bail 22 and the rear bearing 14 is slipped over the journal stud 19 when the coupling of the rear end of bail 22 with the arm 15 of the bearing A¹⁴ is effected by the bolt 23, Fig. 3. The washer cam is then put in place and the screw 12 entered through the bore thereof in the arm 18 of the hanger, taking care while doing this to hold bearing 26 above the slideway 29 of the hanger. When the screw 12 is entered through arm 18 the bail may be swung on the screw as a pivot and the bearing 26 lowered into its position in its seat 29 of the hanger. The position of the finger bar in relation to the frame of the machine or of the line of advance of the machine in operation may then be determined by the position of the washer cam B, in relation to its counterpart 13. If they are so placed that the shoulders *m, n*, are together with rib *f*, in groove *d*, the finger bar will take the position seen in full lines in Fig. 1. But if the washer cam B be turned so that rib *f*, shall enter groove *r*, Fig. 4, the two cam disks will then be separated to their widest limit the effect of which will be to throw the finger bar around into the position indicated by the dotted lines, the shoe and finger bar turning or swinging on bearing 26 as a pivot. When the angle of the cutter bar has been adjusted in relation to the machine as desired the nut 3 is firmly turned up which fastens the position of the finger bar securely.

The angle may be easily and quickly changed by loosening the nut C sufficiently to allow the washer cam B to be turned to the desired position, the multiplicity of grooves affording means for slight variations.

I therefore claim as my invention and desire to secure by Letters Patent, the following:

1. The combination with a yoke and main shoe of a harvesting machine, of front and rear pivot studs for the shoe, a bail provided with a front bearing for the front pivot stud of the shoe fixed against horizontal movement, and a rear bearing for the rear pivot stud of said shoe fixed against vertical movement, said rear bearing being provided with a disk with a cam face integral therewith, and a cam washer revoluble on the axis of said disk, and means

for attaching the rear bearing to the said yoke.

2. The combination with the main frame and the cutting mechanism of a harvester machine, of means adapted to vary the angular relation in a horizontal plane of the finger bar to the line of advancement of the machine when in service, said means comprising a pivot bearing for the finger bar and means for adjusting said bearing comprising coöperating cam surfaces one of which surfaces is connected to said bearing, and the other of which is connected to a relatively fixed part of the apparatus, and means associated with said cam surfaces for locking said surfaces in adjusted positions.

3. The combination with a yoke and a main shoe of a harvesting machine, of front and rear pivot studs for the shoe, a bail provided with a front bearing for the front pivot stud of the shoe fixed against horizontal movement, and a rear bearing for the rear pivot stud of said shoe fixed against vertical movement, said rear bearing being provided with a disk with a cam face integral therewith and a cam washer revoluble on the axis of said disk, means for maintaining the disk and washer in adjusted positions, and means for attaching the rear bearing to the said yoke.

4. The combination with the yoke and main shoe of a harvesting machine, of front and rear pivot studs for the shoe, a bail provided with a front bearing for the front pivot stud of the shoe fixed against horizontal movement and a detachable rear bearing for the rear pivot stud of said shoe fixed against vertical movement, said rear bearing being provided with a stepped cam disk fixed to the rear bearing and a stepped cam washer revoluble on the axis of said disk, means for holding said disk and washer in clutch engagement and for attaching said rear bearing to the said yoke, substantially as specified.

5. The combination with the cutting mechanism of a harvesting machine of a main frame, a disk cam connected with the member which supports the cutting devices, and a concentric rotatable washer cam revolubly mounted on the axis of the disk cam and adapted to coöperate therewith, and means connected with said fixed and washer cams for holding them in adjustment and for binding them to the main frame, substantially as specified.

6. In a harvester machine, the means for varying the angle of the finger bar in relation to the line of advance of the machine in service, comprising a main shoe, a finger bar hinged thereto and a front pivot bearing for hinging the finger bar to the main shoe, a pivot stud, a stepped cam disk concentric with said pivot stud, a revoluble stepped cam washer pivoted on said stud,

the stepped cams of said disk and washer being counterparts of and opposed to each other and having provisions for effecting clutch engagement between them, and means for binding such clutch engagement and for confining said cams and the finger bar in their correct operative position, substantially as specified.

7. In a machine of the character described, the combination of a harvester finger bar, of means for adjusting the angular relation of the same with the machine consisting of a stepped cam disk and a revolvable stepped cam washer adapted to cooperate with said disk substantially as shown, one of said cooperative members having the

faces of its cams provided with elevations and the other member with depressions with which said elevations cooperate to effect clutch-engagement, and means whereby said members may be operatively connected to the finger bar to be adjusted and held in operative relation therewith, substantially as specified.

In testimony whereof I have hereunto subscribed my name in the presence of two witnesses.

JAMES A. BECKETT.

Witnesses:

WM. PORTMAN,
FRANKLIN SCOTT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."