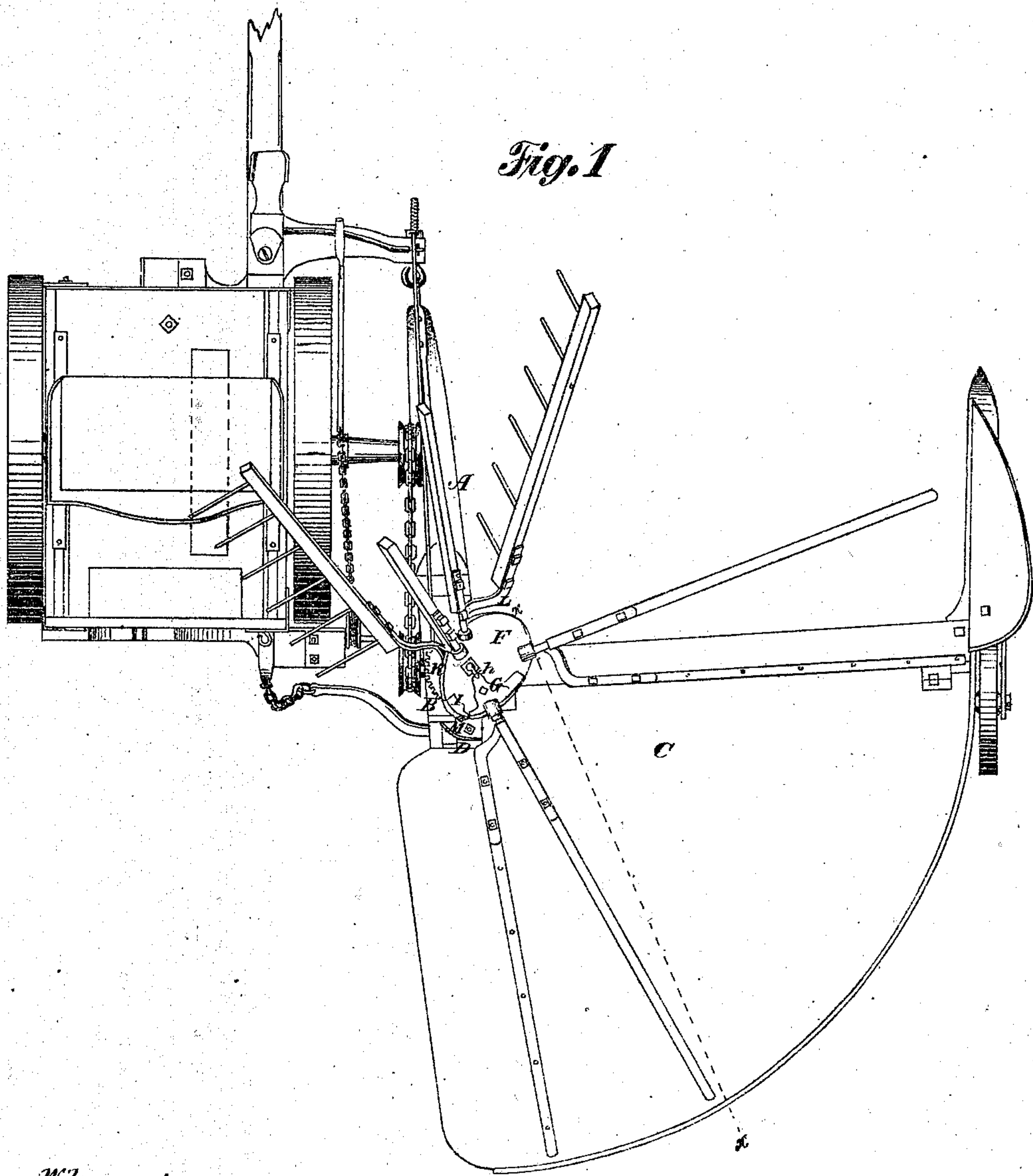


*A. Rank,*  
*Harvester Rake.*

*2 Sheets, Sheet 1.*

*No. 107,721.*

*Patented Sep 27 1870.*



*Witnesses:*

*Joe Peyton,*  
*Baltic De Long.*

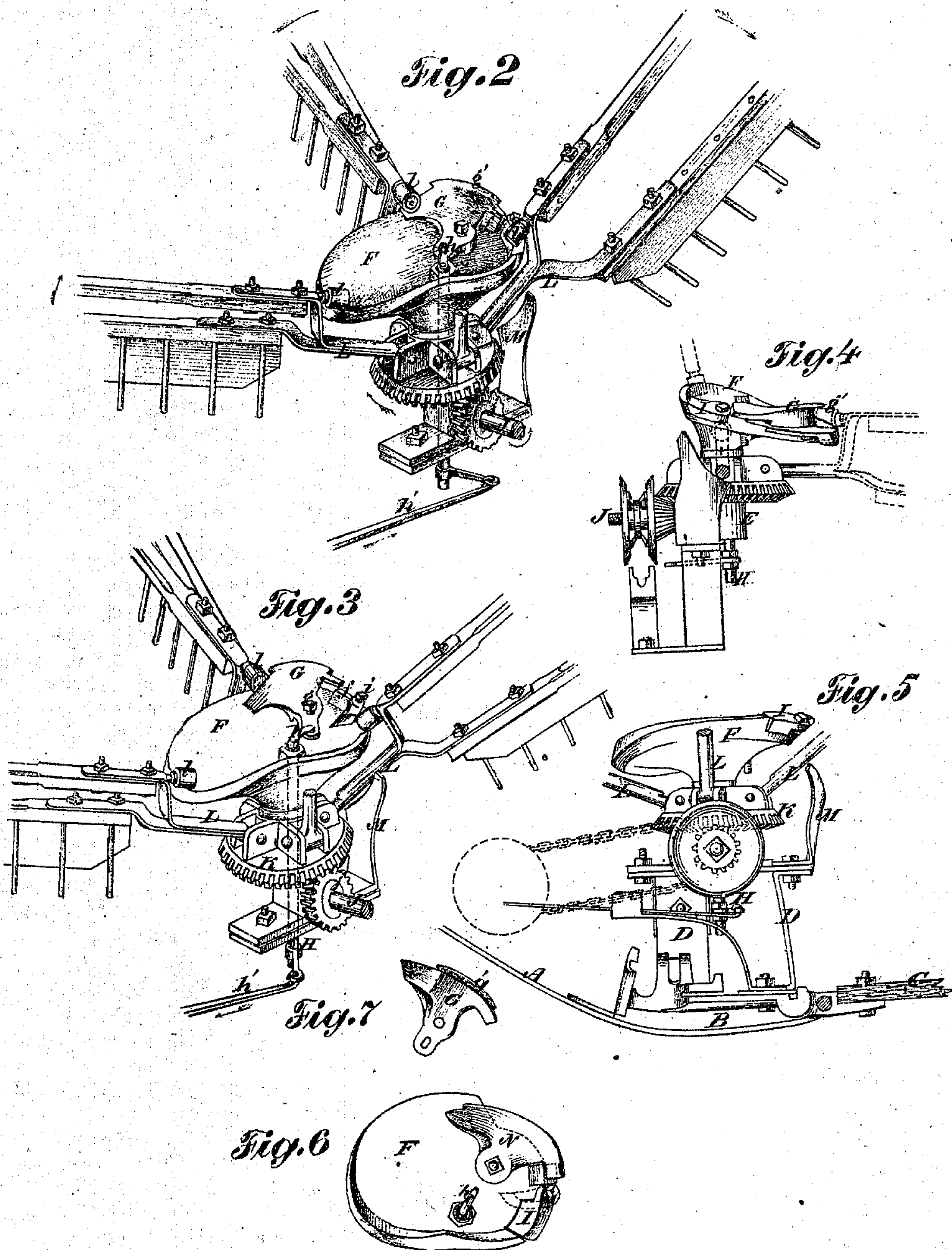
*A. Rank*  
*by his atty*  
*Wm. D. Baldwin*



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Harvester Rake.

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Witnesses:  
J. S. Peyton.  
Baltis Le Long.

A. Rank  
by his atty  
Wm. D. Baldwin



# UNITED STATES PATENT OFFICE.

AMOS RANK, OF SALEM, OHIO.

## IMPROVEMENT IN HARVESTER-RAKES.

*Specification forming part of Letters Patent No. 107,721, dated September 27, 1870.*

*To all whom it may concern :*

Be it known that I, AMOS RANK, of Salem, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Harvester-Rakes, of which the following is a specification :

The invention herein claimed constitutes an improvement on the harvester-rake secured to me by Letters Patent of the United States No. 96,353, dated November 2, 1869, and relates to certain improvements in the construction of the rake, the cam, and its switch and latch, as hereinafter fully set forth.

In the accompanying drawing my improvements are shown as adapted to the well-known "Aetna" harvester, so much only of the machine being shown as is necessary to illustrate the invention claimed.

Figure 1 is a plan of the machine; Fig. 2, a view, in perspective, of the raking mechanism detached, with the switch closed; Fig. 3, a similar view of the same, with the switch open; Fig. 4, a rear elevation of the same; Fig. 5, a side elevation of the same; Fig. 6, a plan of the cam, with a fixed switch; Fig. 7, a plan view of the movable switch detached.

The construction of the machine, forming no part of the subject-matter herein claimed, and being fully shown and described in my prior patents, need not be repeated in detail here. I shall, therefore, confine my description to the parts necessary to the carrying out of my invention.

The drag-bar A supports a shoe, B, and platform C, as usual. A frame or standard, D, mounted on the shoe, supports a tubular shaft, E, on the top of which a cam, F, is secured. This cam is, by preference, a single one, and made of the form shown in the drawing.

By a single cam, I mean a cam having a single track only for the friction-rollers which guide the rake-arms, in contradistinction to a double-walled cam, or a cam having two tracks, on or between which the rollers run.

A switch, G, on the cam, oscillates horizontally on a pivot, *g*. A rock-shaft, H, turns in bearings in the tubular shaft E and carries on its upper end a crank, *h*, pivoted to the switch G. The lower end of the rock-shaft is operated by the driver, from his seat on the machine,

by a crank-arm and link, *h'*, as described in my patent of November 2, 1869, aforesaid, but may be operated in other well known ways. A latch, I, oscillates on an inclined pivot, *i*, near the back edge of the cam. A stud-axle, J, on the frame D, carries a bevel-pinion, *j*, which is driven by a chain and sprocket-wheel, or other equivalent means, and in turn drives a crown-wheel or bevel-gear, *k*, turning on the tubular shaft E. Arms L oscillate freely, in a vertical plane around their pivots, in lugs on the top of this crown-wheel, in the usual way. These arms are bifurcated, and carry beaters and rakes, as shown in my patent of November 2, 1869, aforesaid. Friction rollers *l* on these arms run on the cam, as hereinafter explained.

In operation, when the switch G is closed, as in Fig. 1, the rollers all run on the upper side of the cam, and the rakes act as beaters merely. When the switch is opened, as in Fig. 2, the first roller that comes along escapes through this opening, and passes under a flange, *g'*, Figs. 4 and 7, on the outer edge of the switch, and thus causes the rake to sweep the gavel from the platform.

As the roller moves backward, its inner face bears against the outer edge of the switch, and swings it backward on its pivot until it abuts against a stop, *f*, on the cam. This is a valuable improvement, as by it the switch is automatically closed by the rake-arm itself, and I am thus enabled to dispense with a spring to retract the switch. As the roller escapes from the switch, the arm L strikes an incline or riser, M, which lifts the arm until its roller strikes the latch I, which opens and allows the roller to pass upward to the inner side of the cam on which it runs, until the switch is again opened.

It is obvious that the relation of the rakes and beaters might be changed, and also that one or more of the rakes might be omitted, and yet the machine would still do good work.

By opening the switch every time it is closed by the passage of a roller, each rake in succession would discharge a gavel, thus producing an almost continuous swath.

I propose sometimes to use a fixed switch, N, of the form shown in Fig. 6, to replace the movable one G, in crops where a continuous



discharge is desired, as by this means each rake will in turn sweep a gavel from the platform without any attention from the driver.

This capacity of modifying the frequency of the discharges is important in cutting oats, barley, and other crops which it is preferred to let lie on the stubble in a swath until cured.

I claim as my invention—

1. The switch, constructed as described, to oscillate horizontally on its pivot, and with a flange, *g'*, to hold the rake down upon the platform while sweeping the gavel therefrom, as hereinbefore set forth.

2. The combination of the single cam, constructed as described, with the switch constructed as described, to oscillate horizontally on its pivot, to hold down the rake while sweeping the gavel from the platform, and automatically to be closed by the direct action of the rake, as hereinbefore set forth.

3. The combination of the cam, the switch oscillating horizontally on its pivot, and automatically closed by the direct action of the

rake, the crank-arm pivoted directly to the switch, and the rock-shaft, for opening the switch, passing through the axis of rotation of the rakes, all these parts being constructed to operate in combination, substantially as hereinbefore set forth.

4. The combination of the roller on the rake-arm, the cam, and the horizontally-moving oscillating switch, automatically closed by the direct action of the rake while raking off its gavel, substantially as set forth.

5. The combination of the roller on the rake-arm, the cam, the switch automatically closed by the direct action of the rake, and the latch to return the rake to the upper side of the cam, substantially as set forth.

In testimony whereof I have hereunto subscribed my name.

AMOS RANK.

Witnesses:

SAML. T. STREET,  
WILLIS CADWALLADER.