

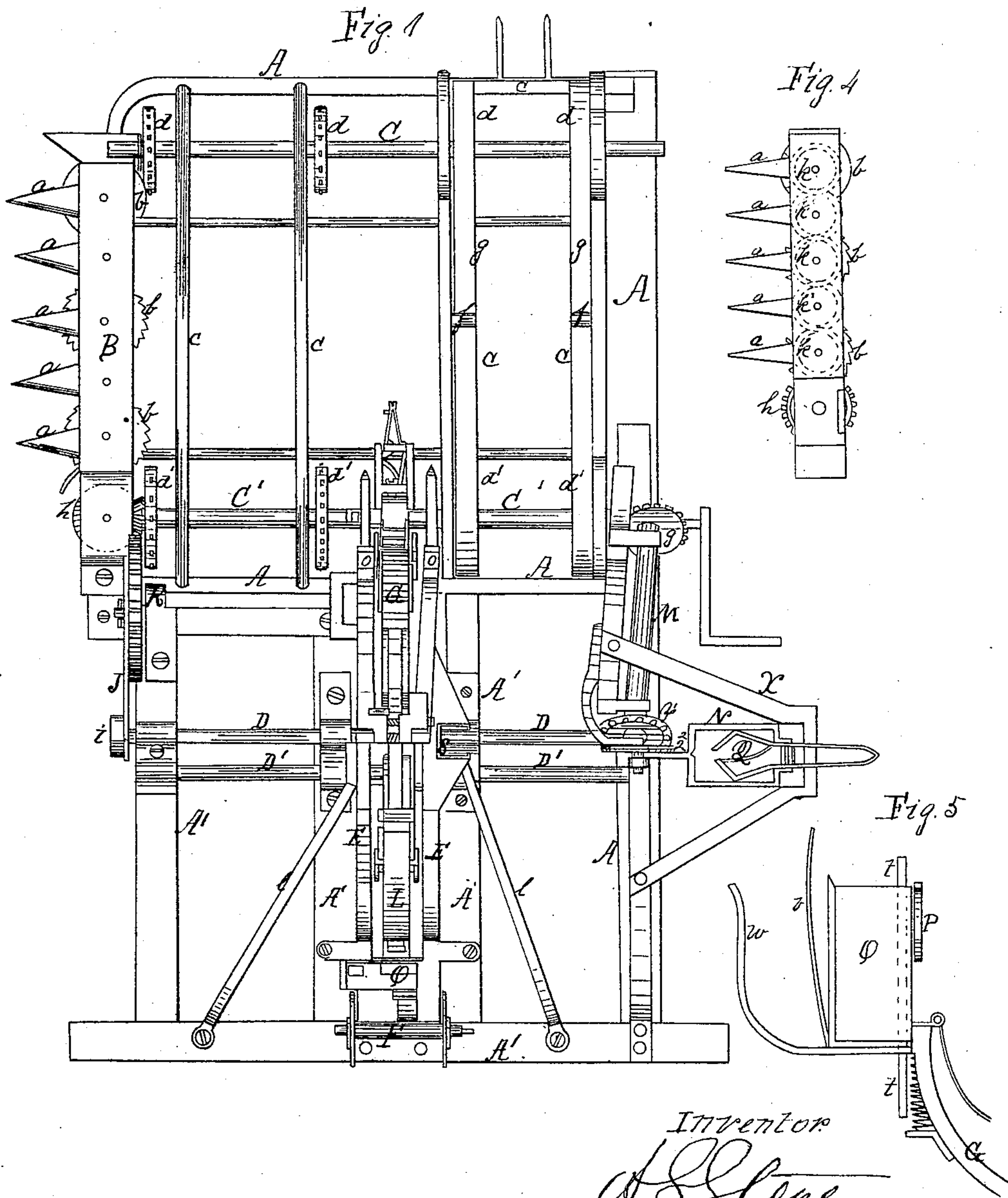
A. S. STONE.

Grain Binder.

2 Sheets—Sheet 1.

No. 75,215.

Patented Mar. 3, 1868.



WITNESSES

S. Schmitt
W. H. K. K. K.

Inventor

A. S. Stone

per

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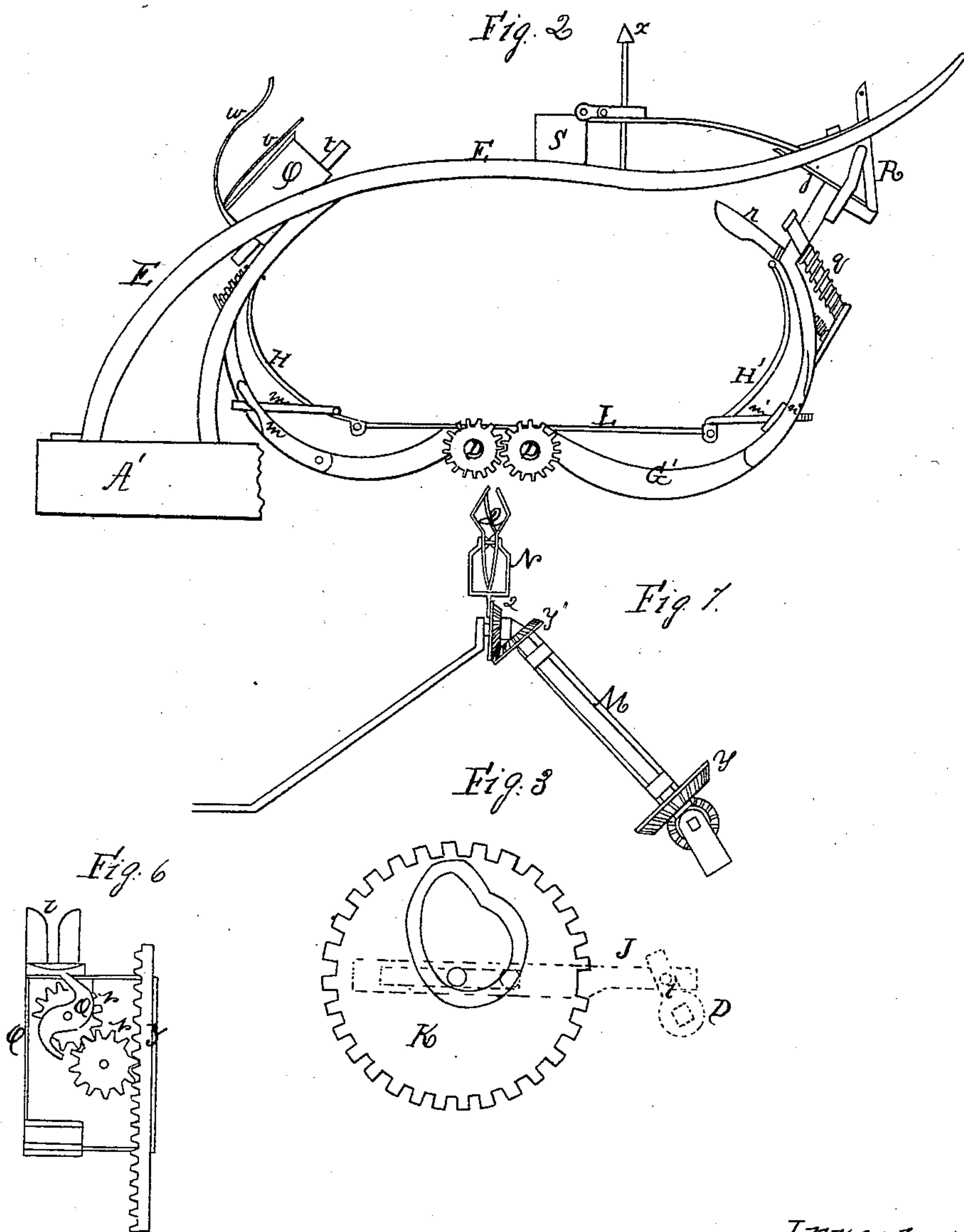
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A. S. STONE, OF PLAINVIEW, MINNESOTA.

Letters Patent No. 75,215, dated March 3, 1868.

IMPROVEMENT IN GRAIN-BINDERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, A. S. STONE, of Plainview, in the county of Wabashaw, and in the State of Minnesota, have invented certain new and useful Improvements in Combined "Platform Reapers and Grain-Binder;" and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

Figure 1 represents a plan view of the entire combined reaping and grain-binding machine.

Figure 2, a side elevation of the metal bars through which the binder-arms operate; also the parts composing the binder.

Figure 3, a side view of the wheel with a cam on its outer face, the pitman and crank working therein which operate the arms of the grain-binder.

Figure 4, a plan view of the cutter-bar, showing how operated by means of the small cogs and idle-wheels.

Figure 5, a view of the wire-carrier and twister.

Figure 6, an inverted plan view of the wire-twister.

My invention consists in the combination of a reaping-machine and grain-binder, in such a manner as to effectually cut the grain, throw it upon the platform, and, from thence, carry it to the grain-binder, bind the grain, and carry it off of the machine.

This invention is placed upon suitable wheels, as may be preferred, and in position to allow the sickle to come near the ground, in the usual manner, for cutting the grain.

In the annexed drawings, A represents the frame for the reaper, which is composed of horizontal metal bars, and connected in a suitable manner. Connected to this frame are four or more curved metal bars, *c*, extending from side to side of the frame, having an interval between each, and which form the platform for the reception of the grain after being cut.

At the front of the frame is placed the sickle B. This sickle has the usual fingers, *a a a*, and cuts the grain by a series of sharpened notched wheels, *b b b*, which wheels are revolved by small cogs, *k*, above each, with an idle-wheel, *k'*, between each of the cutting-wheels *b*, to revolve them all in the same direction.

C' represents a horizontal shaft at the inner end of the frame A, which extends from front to rear of the frame, having a cog-wheel at each end. Upon this shaft there are several stationary pulleys, *d' d'*, with a rough surface. C represents a corresponding shaft at the opposite end of the frame, having no cogs, but the corresponding stationary pulleys, *d d*.

g g represent the chains or leather belts, which are provided with the rake-teeth *e*, and which are passed over the wheels *d d' d' d'* of the rake-shafts C C', and which carry the grain from the platform to the grain-binder.

The rake-teeth *e* are composed of a bar, with small shoes, (not shown,) and the usual fingers. The bar extends from one of the bars *c* to the opposite one, and is there secured in the chain or belt, with its shoes extending into the grooves formed in the platform, to prevent the rakes from being displaced when passing over the platform.

f f are small friction-rollers, secured to the bars *c*, and under which the chains pass.

It will be seen that the rakes pass from the outer to the inner end of the platform to bring the grain to the binder, and, as they reach the binder-frame A', pass under the wheels and platform, and, coming up at the outer end again, are ready for another gavel.

A' represents the binder-frame, which may be of wood or metal, with bearings for the two horizontal shafts D D', which cross the frame at its centre. These shafts have each a small cog-wheel, *y² y²*, near their centre, which mesh into each other, (see fig. 2,) and which operate the grain-binder.

G G' are the two curved metallic arms which encircle the grain. These arms are made in a semicircular form, and firmly attached, at their lower ends, to their respective shafts, D D'.

Hinged to the inner side of each arm are metal springs, H H', which are curved in the form of the arms, and connected together, at their lower ends, by an India-rubber band, E, which crosses both shafts, as seen in fig. 2. There are also two notched metal bars encircling these springs near the lower ends, which catch to small springs in their respective arms, and by which means the size of the bundle of the grain is regulated. (These bars and springs are seen, in fig. 2, at *m m' n n'*.)

F, in fig. 1, represents the spool, which is attached to the end of the frame A', and which is provided with the wire for bundling the grain. The wire is taken from this spool over the eyelet *w*, through the guide *v*, around over the arm G, and to the arm G' inside, and thence to the pincers R, which is secured at the top of the arm G', so that, when the grain is brought on to the arm G', and the arm brought up in the position shown in fig. 2, it lies under the bottom and around the sides of the bundle.

O represents a small metal box upon the upper end of the arm G, (see figs. 3, 5, and 6,) which has two small cogs, *z z*, on its inside, which mesh into each other. These cogs are operated by a rack-bar, *t*, which is longer than the box O, and extends outside thereof.

o represents an S-shaped metal plate, hung beneath the box by a pivot in its centre, and which twists the two ends of the wire, as will hereafter be described.

j is a chisel, secured to the upper end of the arm G, for the purpose of cutting the wire after being twisted by the plate *o*. There is also a stationary chisel, *x*, in a vertical position upon the outer end of the curved support E, which may be used whenever required.

Upon the rear end of the frame A' is the device for carrying the grain off of the machine after it is bound.

X represents a triangular-shaped metal bar, having its bearings on two slanting rods, attached to the frame to support the bar X on a line with the height of the curved guide-bars E.

M is a small shaft, with a faced cog, *y y'*, on each end, and which is secured, in a slanting position, parallel with its rods from the inner end of frame A.

Between the two rods heretofore described is a faced cog, *z'*, into which the upper cog, *y'*, of the shaft M meshes, while the lower cog, *y*, of said shaft M, meshes into a small cog on the end of the rake-shaft C'.

N represents a small metal frame, having a pair of pincers, Q, hung within it, and which pincers, by means of its being revolved, are passed through a cup, S, on the side of the bar E, and opened to catch the bundle of grain and carry it off.

The operation of this machine is by the usual horse or other power. It is propelled through the field, and the fingers dividing, while the revolving cutters *b b* cut the grain and drop it upon the skeleton platform. The binder-arm G' being down, it is carried thereon by the rakes *e e*, when the arms G' and G are brought up by the peculiar shape of the cam on the face of the wheel K. J is a bar, having a small pin, which fits into the grooved cam at the outer end, while the inner end of said bar is attached to a small crank, *j*, upon the end of the binder-shaft D. It will be observed that every revolution of this wheel brings the arms up and down again.

The rake-shaft C' is provided with a faced cog upon its forward end, into which the cam-wheel K meshes, and by which the binder is operated as well as the sickle, as will be seen at *h* in fig. 1.

After the gavel is within the arms, the wire is first twisted by the movement of the rack-bar, which turns the S-plate *o*, and is then cut by the chisel. After thus being cut, the pincers Q come down through the cup S, and, being thus opened, clutch the grain by its wire, and, revolving, carry it to the bar X, and are again opened, drop the grain, and ready for another bundle.

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

1. The arms G G', arranged upon the shafts D D', with the springs H H', rubber L, box O, with twisting-device, and pincers R, and chisels, all constructed, arranged, and operating in the manner substantially as and for the purposes herein fully set forth.

2. The carrying-device, composed of the bar X, shaft M, with its cogs *y y'*, and wheel *z*, with its frame, and revolving pincers Q, when constructed and used in the manner and for the purposes specified.

3. The combination of the reaper-platform *e*, rake-shafts C C', wheels *d d'*, chains *g g*, with rakes *e*, and cutters *b b* with the grain-binding devices herein described, all arranged and used substantially as specified.

In testimony that I claim the foregoing, I have hereunto set my hand, this 30th day of January, 1867.

A. S. STONE.

Witnesses:

H. H. BUTTS,

W. C. WHITNEY.