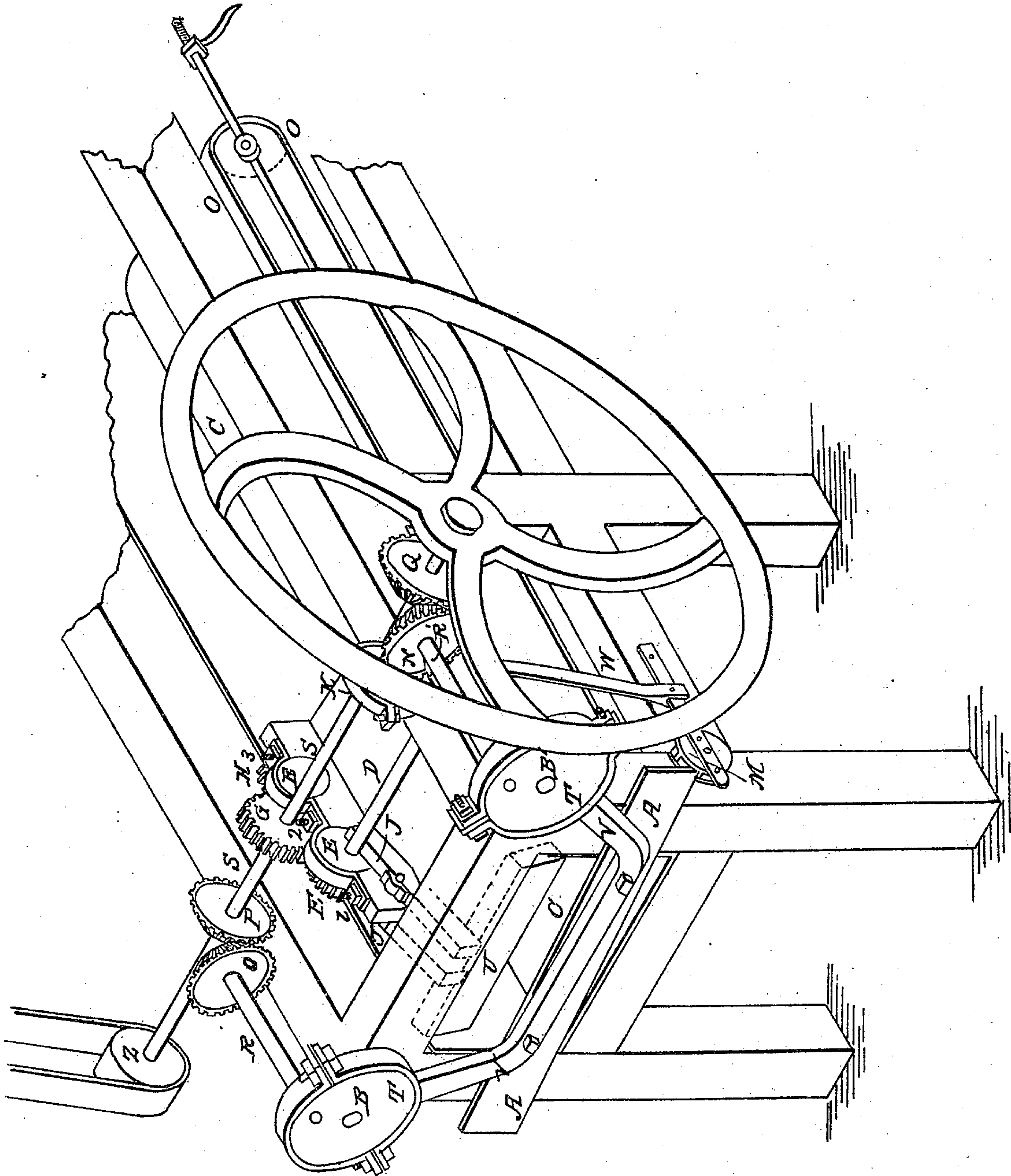


M. STEIGERS.

Straw Cutter.

No. 19,586.

Patented March 9, 1858.



UNITED STATES PATENT OFFICE.

MATTHIAS STEIGERS, OF ST. LOUIS, MISSOURI.

MODE OF PRODUCING VERTICAL AND HORIZONTAL RECIPROCATING MOTIONS.

Specification of Letters Patent No. 19,586, dated March 9, 1858.

To all whom it may concern:

Be it known that I, MATTHIAS STEIGERS, of the city of St. Louis and State of Missouri, have invented a certain new and Improved Method of Communicating a Reciprocating and Parallel Motion in a Vertical and Horizontal Direction to Machinery, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, making part of this specification, in which the figure represents a view in perspective of a straw or cornstalk cutter to which my improvement has been applied, a portion thereof being represented as broken off.

My improvement consists in a new mode of imparting motion to machinery in a vertical and horizontal direction and in a parallel line with a given plan, by means of a peculiar arrangement of double cranks or eccentrics to which that part of the machine is attached to which such motion is intended to be communicated.

To enable others skilled in the art to make construct and use my invention I will now proceed to describe its parts in detail, as applied to a straw cutter, or cornstalk cutter.

The frame of the machine may be constructed on a plan similar to those in general use, upon the upper side of which are formed bearings for the support of the driving shaft (S) on which is secured a spur wheel (G) which meshes or gears into two others spur wheels (F and H) of corresponding size and number of teeth, the shaft of each of which have their bearings formed in, or otherwise suitably secured to the upper side rails of the frame. On each of these shafts (1 and 1) and which are arranged in a line parallel with each other, and at an equal distance apart from the driving shaft, is secured a cam or eccentric (E) of equal throw or degree of eccentricity, and in such manner, that on motion being communicated to them, the board (D) that is attached to their respective yokes (I) will, while being raised in a vertical direction, be maintained in a horizontal plane, even when receiving a reciprocating motion in that direction by the revolution of the eccentrics. In other words the board will always be in a parallel with the bottom of the machine while it is receiving a reciprocating motion as it is being raised or lowered in a vertical direction. The object of communicating such a

motion to the board (D) will instantly suggest itself in its connection with a straw cutter, as it not only compresses the straw against the endless apron (C) thus rendering it easier to be cut by the action of the knife, but it also assists, in conjunction with the feed apron, in feeding it up, and that in a more regular and even manner than if done by the latter alone, more especially as the feed of the apron is made intermittent and that simultaneously with the forward motion of the feeding and compressing board (D). The motion of the apron for this purpose being communicated through a ratchet lever carrying a pawl which meshes into the teeth of a ratchet wheel (M) secured on the end of one of the rolls around which the endless feed apron (C) is passed. The ratchet lever being operated by a connecting rod (W) of a cam yoke to which it is secured. The eccentric that operates the cam yoke receives its motion from the driving shaft (S) on which it is secured. Upon the driving shaft (S) are secured two bevel wheels (P and Q) which gear into two other bevel wheels (O and N) mounted on shafts (R and R'), having their bearings formed on the upper side of the box or in any other suitable manner, and running in a line parallel with each other on either side of the machine, on the other end of each of which (the shafts) is mounted an eccentric (B and B') to which is secured the cutting knife (A) by means of yokes (T) and their connecting rods (V). These cams are arranged precisely in the same manner as the eccentrics (E), that is to say in such manner as to communicate to the knife a reciprocating motion in a vertical and horizontal direction. But as it is better in cutting straw or other analogous substances to give to the knife a drawing cut, the latter instead of being secured to the arms (V) in a horizontal plane may be set at an angle thereto, which will have the effect of producing this desirable result.

To the front of the feed board (D) is pivoted a weighted lever or compressing frame (U) which by its weight binds the straw while in the act of being severed by the knife, and again relieves it when the board is raised to its full height ready to recommence the operation of feeding.

From the foregoing description it will be apparent that my improvement is capable of being applied to many and various pur-

poses; and of effecting many new and useful results, without departing at all from the principle of my invention, whether in the shape of the eccentrics or cranks so long as
5 they are so arranged and combined as to produce a reciprocating motion in a vertical and horizontal direction at one and the same time.

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

So arranging and combining a series of

eccentrics or their equivalents as to communicate to machinery a reciprocating motion in a vertical and horizontal direction
15 at one and the same time, substantially as set forth.

In testimony whereof I hereunto set my hand.

MATTHIAS STEIGERS.

Witnesses:

P. B. GARESCHÉ,
EDW. G. FARISH.