No. 628,249. Patented July 4, 1899.

M. KANE.

CLUTCH.

(Application filed Mar. 7, 1899.

(No Model.)

Fig. 3.

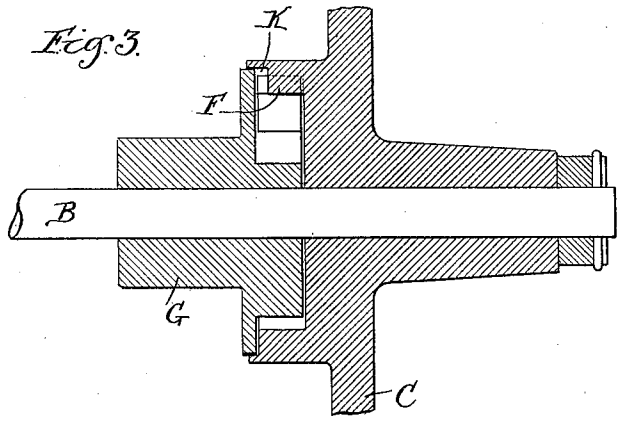


Fig. 1.

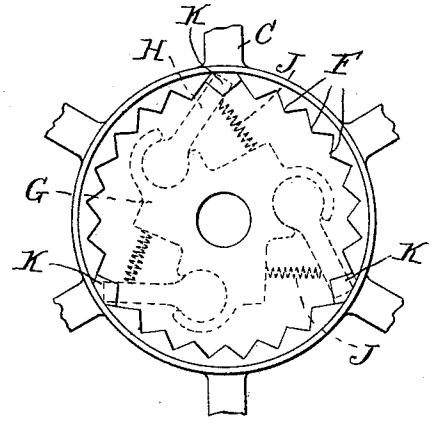
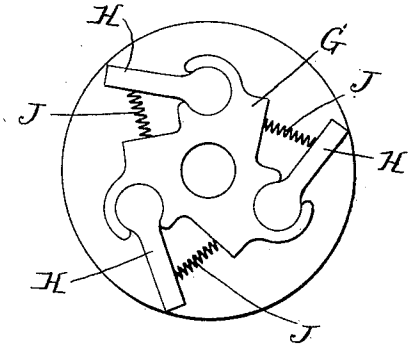


Fig. 2.



Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MAURICE KANE, OF AUSTIN, ILLINOIS.

CLUTCH.

SPECIFICATION forming part of Letters Patent No. 628,249, dated July 4, 1899.

Original application filed March 30, 1898, Serial No. 675,824. Divided and this application filed March 7, 1899. Serial No. 708,068. (No model.)

To all whom it may concern:

Be it known that I, MAURICE KANE, a citizen of the United States, residing at Austin, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Mowing-Machines, of which the following is a specification.

This invention relates to clutches for mowing-machines, and is a division of my application, Serial No. 675,824, filed March 30, 1898.

The object of the invention is to provide means for facilitating the mounting of the traction-wheels of mowers upon their supporting-axle.

The invention consists substantially in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally specifically pointed out in the appended claims.

Referring to the accompanying drawings and to the various views and reference-signs appearing thereon, Figure 1 is a broken detail view, in side elevation, of the hub of a traction-wheel, showing the ratchet-teeth formed thereon. Fig. 2 is a detached detail view in side elevation, showing the arrangement of parts with which the ratchet-teeth formed on the hub of the traction-wheel cooperate. Fig. 3 is a broken view, in longitudinal section, of the traction-axle, showing the coöperative relation of the ratchet-teeth and pawls shown in Figs. 1 and 2.

The same part is designated by the same reference-sign wherever it occurs throughout the several views.

In machines of this class it is customary to so mount and relatively arrange the traction-wheels upon the main axle as to secure rotation of such axle with the traction-wheels only when the traction-wheels rotate in one direction—namely, that direction which causes a forward movement of the machine—while permitting said traction-wheels to reversely rotate without effecting a rotation of the main axle. In order to secure this result, it has been customary to provide the hub of the traction-wheel with ratchet-teeth, with which coöperate pivoted pawls mounted upon the axle and so relatively arranged that the ends of the pawls engage in the ratchet-teeth when the traction-wheel is rotated in one direction, but to ride loosely over such ratchet-teeth when such wheel is rotated in the reverse direction. It is to a machine of this character that the present invention relates.

In the drawings, reference-sign B designates the driving-axle of the machine, and C the traction-wheel, having the ratchet-teeth F formed annularly on the inside of a rim or flange of the hub thereof. Upon a hub or sleeve G, suitably secured to the shaft B, are pivotally arranged the pawls H. Springs J serve to normally but yieldingly throw the outer or free ends of said pawls outwardly. These pawls are so mounted relative to the ratchet-teeth F, formed on the hub of the traction-wheel, when these parts are suitably assembled, as to engage said teeth so as to secure coincident rotation of the main shaft B and the traction-wheels when said wheels are rotated in one direction; but when rotated in the reverse direction the free ends of these pawls ride idly over the ratchet-teeth without effecting a coincident reverse rotation of the main shaft, it being understood that the pawls H are all suitably presented and inclined in the same direction with respect to each other.

Heretofore considerable difficulty has been experienced in properly and quickly assembling the traction-wheels upon the shaft with the pawls H in suitable engaging relation with respect to the annular ratchet-teeth F. In effecting the assembling of these parts the sleeve G or other arrangement which carries the pawls H is first placed in position, and then the wheel C is slid upon the end of shaft B. It invariably happens that the pawls H will not readily enter the ratchet-teeth in proper position when the traction-wheel is slid on the end of the shaft. The reason for this is that the tension of springs J normally maintains the pawls H out of their proper working position when finally assembled, and as these pawls are held at the limit of tension of the compression-springs J at the time the wheel is placed on the end of axle B said pawls occupy positions which prevent the free ends thereof from entering the ratchet-teeth F. In order that such entry

may be effected, various expedients have been resorted to, none of which have proved efficient or satisfactory. For instance, it is the custom when the wheel is slid toward support G for the workman to slightly depress successively the pawls H until they partially engage at the desired point with a tooth of ratchet F. This, however, is objectionable because while the workman is effecting the partial engagement of one of the pawls one or more of the other pawls which may have been previously partially engaged on the edge thereof with a tooth of the ratchet may become detached, and hence requiring the exercise of great care in assembling the parts and resulting in delay, which impedes a rapid assemblage. Moreover, it frequently happens that when the pawls have finally been arranged in proper engagement with the teeth of ratchet F and pressure is applied to the wheel to move the same, so that the pawls will be fully encircled or inclosed by ratchet F, the fingers of the workman will be caught between the hub of the wheel and the hub G, which carries the pawls. It is one of the purposes of the present invention to avoid the danger and objections noted and to provide means whereby the wheels may be readily assembled with the ratchet-teeth F on the hub thereof in coöperative relation and arrangement with respect to the engaging ends of the pawls. This desirable object is accomplished in the present instance by providing in the face or edge of the flange, on the inner surface of which the ratchet-teeth F are formed, depressions or seats, (indicated at K,) spaced a suitable distance apart and corresponding in number and arrangement with the pawls H.

The operation is as follows: After the pawls H have been suitably arranged with respect to the shaft B the wheel is slipped on the end of such shaft and is slid laterally upon or toward the pawls. By suitably rotating the wheel the depressions K in the face or edge of the flange formed on the hub of the wheel which is next adjacent the pawls may be eventually brought into alinement or register with the proximate lateral edges of the pawls, thereby permitting the pawls to readily enter therein. Now by rotating or rotarily moving the wheel and simultaneously therewith exerting pressure thereon to slide the same endwise of the shaft the edges of the pawls are engaged by the walls of seats or depressions K, thus simultaneously rocking all the pawls about their pivots in a direction to compress springs J and to permit the free ends of such pawls to clear the ratchet-teeth F. When this clearance is finally effected, the lateral movement or pressure exerted upon the wheel in a direction to effect the engagement of the pawls with the ratchet-teeth F will cause the wheel to be slid upon the pawls and into position for the free ends of the pawls to properly engage the teeth of ratchet F. In this manner the wheels may be rapidly assembled without necessitating undue care and without endangering the hands or fingers of the workman.

Many variations and changes in the details of construction and arrangement will readily suggest themselves to persons skilled in the art and still fall within the spirit and scope of my invention. I do not desire, therefore, to be limited or restricted to the exact details shown and described; but,

Having now set forth the object and nature of my invention and a form of apparatus embodying the same and having explained the construction, function, and mode of operation thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is—

1. In a clutch for a mowing-machine, a driving-axle, traction-wheels mounted thereon, a ratchet, engaging pawls therefor, one of said latter parts being mounted on to revolve with the axle, and the other carried by said wheel, said pawls being pivotally mounted and arranged to engage said ratchet, whereby said wheels are coupled to said axle to rotate the same when said wheels are rotated in one direction, but are permitted to rotate in the opposite direction without rotating said axle, said ratchet provided with seats or depressions in the edge thereof, adapted to receive the proximate edges of said pawls, whereby, when the parts are assembled, said pawls may be depressed by partially rotating said wheels to readily enter into engaging relation with respect to said ratchet, as and for the purpose set forth.

2. In a clutch for a mowing-machine, the combination with a driving-axle, a series of pawls pivotally mounted with respect thereto and adapted to revolve with such axle, traction-wheels having a hub with ratchet-teeth formed thereon, the face or edge of said hub provided with seats or depressions, whereby when the traction-wheels are slid upon the ends of such axle the proximate edges of said pawls may be received in said seats or depressions, whereby on rotation of such wheels the pawls are depressed into position for the ends thereof to be received into operative engagement with the teeth of said ratchet, as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 1st day of March, 1899, in the presence of the subscribing witnesses.

MAURICE KANE.

Witnesses:
FRANK T. BROWN,
EDWIN C. SEMPLE.