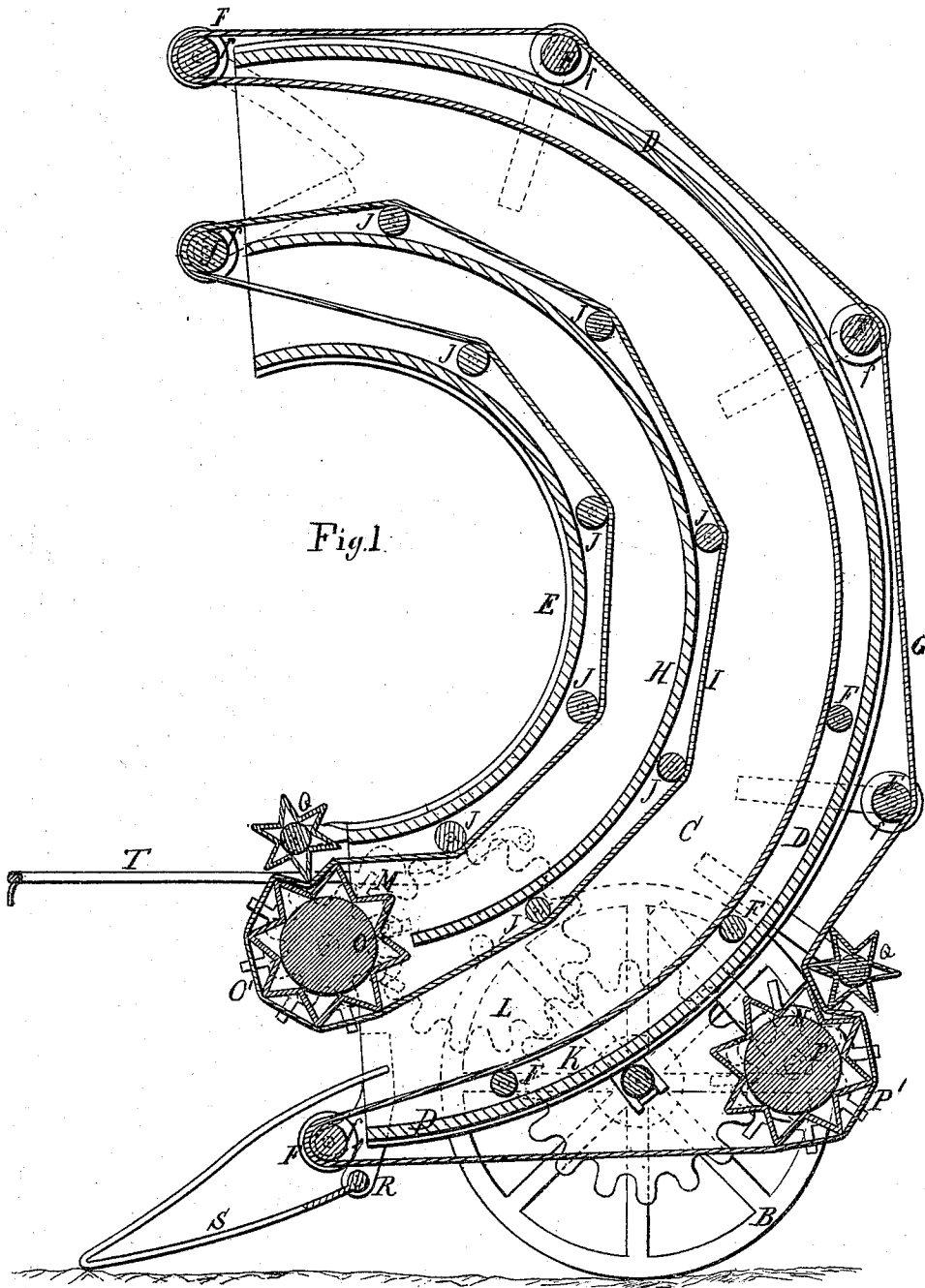


H. C. HOWLAND & T. L. MOORE.

Hay-Loaders.

No. 142,234.

Patented August 26, 1873.



Witnesses,
E. W. Bates.
George E. Upham.

Inventors,
Hiram C. Howland,
Thomas L. Moore,
Clifford L. Howland
Atty

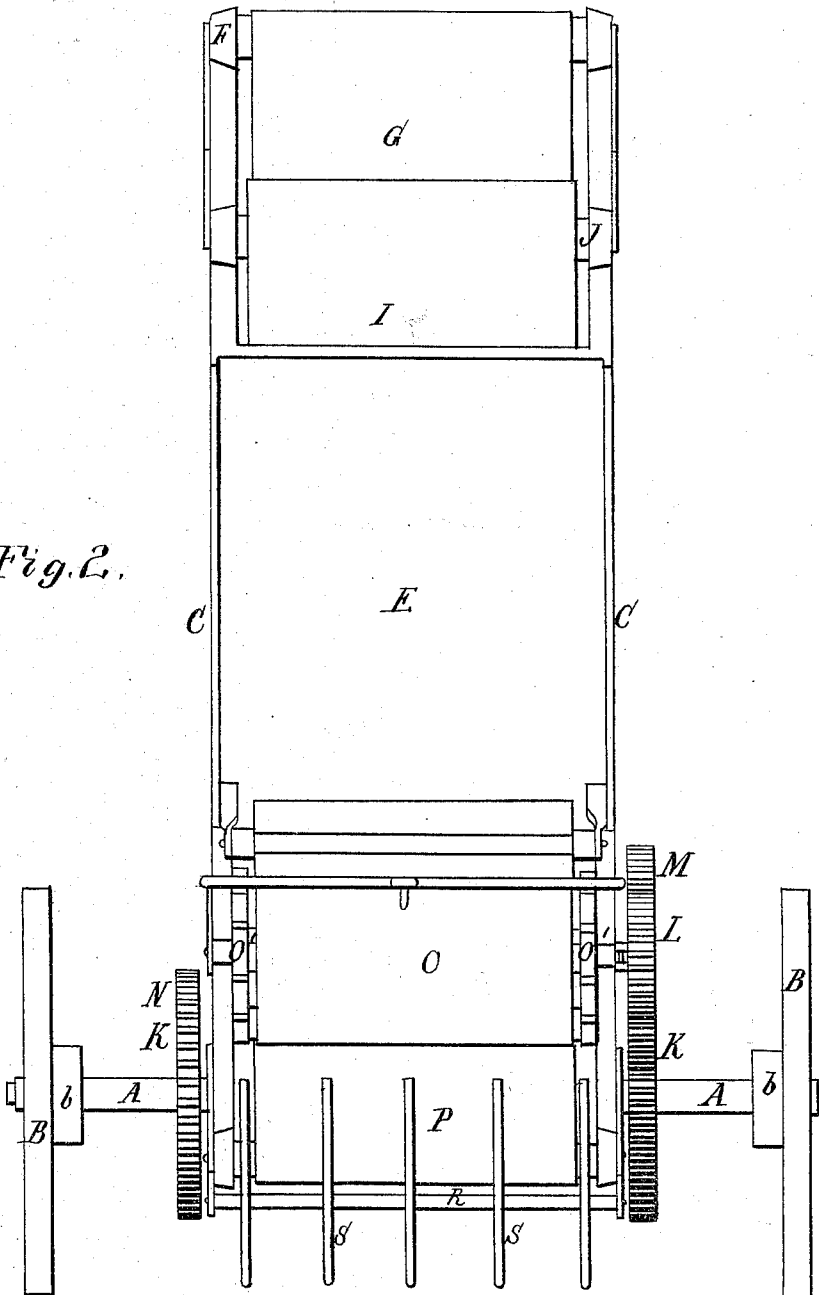
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Fig. 2.



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UNITED STATES PATENT OFFICE.

HIRAM C. HOWLAND AND THOMAS L. MOORE, OF OXFORD, NEW YORK.

IMPROVEMENT IN HAY-LOADERS.

Specification forming part of Letters Patent No. **142,234**, dated August 26, 1873; application filed June 28, 1873.

To all whom it may concern:

Be it known that we, HIRAM C. HOWLAND and THOMAS L. MOORE, of Oxford, in the county of Chenango and State of New York, have invented a new and valuable Improvement in Hay-Loaders; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of our improved hay rake and loader, by a vertical central section. Fig. 2 is a front elevation of the same.

Our invention relates to hay-loaders or grain-loaders; and it consists of a curved channel lined with two endless aprons, between which and by which the hay or grain is elevated to the termination of the said curved channel, and from there dropped into a wagon, cart, or sled, to which it is attached, the whole being mounted on two wheels and a driving-axle. The object of our invention is to make a machine with which the hay or grain is gathered from the windrows, or in any other manner, from the ground, and by which it is conveyed into the vehicle to which the said machine is attached.

In the drawings, A represents an axle, supported by two wheels, B, from which it receives its forward motion by aid of inclosed ratchet-wheels and spring-pawls *b*, of common construction. The axle A supports, by means of bearings *a*, two upright ring-sectors, C, which are connected by semi-cylindrical coverings D and E. A number of rollers, F, are arranged on the inner and outer side of the covering D, and at both ends of it, to facilitate the movement of an endless apron, G, the outside and end rollers being provided with side flanges *f*, to prevent the apron from running off the rollers. A concentric partition, H, between the coverings D and E, is, in a similar manner to that above mentioned, surrounded by a traveling endless apron, I, and anti-friction rollers, J. The two aprons receive motion from the shaft A by aid of the cog-wheels K L M N, two of which, K, are fastened to the shaft A, and of

the two latter M is fastened to the shaft of a fluted roller, O, and N is fastened to the shaft of a fluted roller, P, while L serves as an intermediate gear between the wheels K and M, for reversing the motion. The rollers O and P are provided at both ends with sprocket-wheels O' and P', to suit the operation of a chain-apron, if such should be preferable. The said rollers are provided with counter-rollers Q, fluted in the same manner, in regard to pitch and depth, as the rollers O and P, in connection with which they serve to propel the aprons G and I. The ring-sectors C are, at their lower ends, provided with a rock-shaft, R, to which a number of return rake-teeth, S, are fastened, which advance downward, and return upward, until they rest on top the front roller F.

The machine is fastened to the end of a wagon, or other vehicle into which the hay is to be gathered, by a coupling-bar, T, whereby the upper end or the delivering part is brought directly above the said vehicle.

The hay is gathered by the rake-teeth S, and pushed, by its accumulation and friction on the ground, up to the roller P, where it is caught by the revolving apron G, and carried up between the two aprons G and I, to its destination.

The semi-annular shape of our hay-loader makes it very short in comparison to those loaders which elevate on an inclined plane, and thereby enables it to be attached nearer to the teams than any other hay-loader. This is a great advantage, as the machine is not so apt to trail or take a tortuous course, instead of a straight one, when operated, nor is the cleaning of the skirts of a field or meadow as difficult, when the hay or grain can be gathered close to the horses' feet, as it would be otherwise.

What we claim as new is—

1. The hay-loader herein described, having the upright ring-sectors C, with the semi-cylindrical coverings D E, the rollers F and J, and the endless aprons G and I, operating in the manner as shown, and for the purpose mentioned.

2. In a hay-loader, the construction and arrangement of the fluted propelling-rollers O and P, in connection with the fluted counter-

rollers Q, and the endless aprons G and I, substantially as and for the purpose set forth.

3. In a hay-loader, the semi-annular frame, consisting of the parallel sides C and the concentric cylindrical coverings D and E, constructed and arranged in connection with the rollers and apron, for the purpose of receiving and delivering the hay or grain on the same side, substantially as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

HIRAM C. HOWLAND.
THOMAS L. MOORE.

Witnesses:

S. S. STAFFORD,
W. B. LEWIS.