

No. 620,919.

Patented Mar. 14, 1899.

T. HAWKE.

ROTARY SUBSOIL ATTACHMENT FOR PLOWS.

(Application filed Dec. 31, 1897.)

(No Model.)

3 Sheets—Sheet 1.

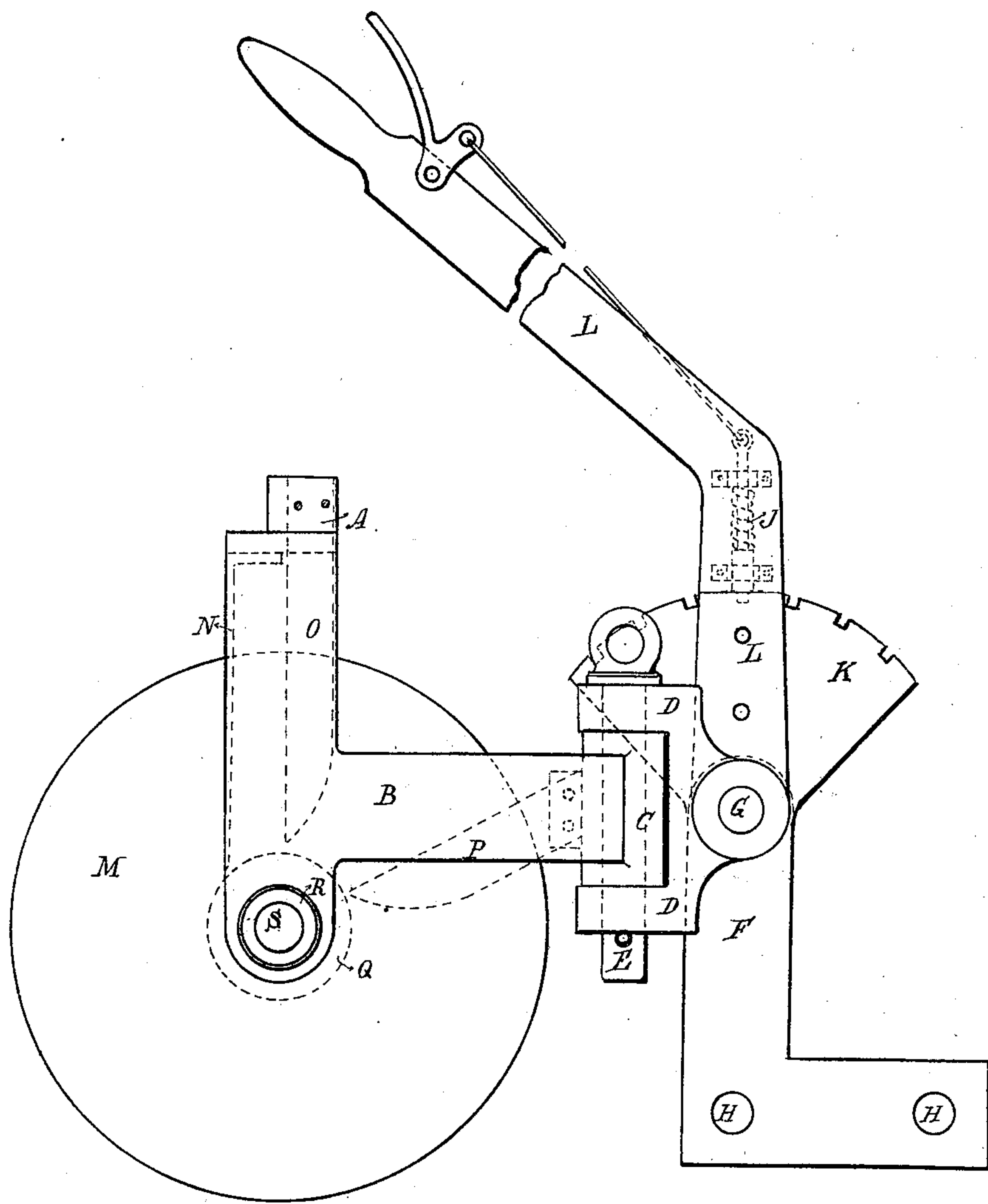


Fig. 1.

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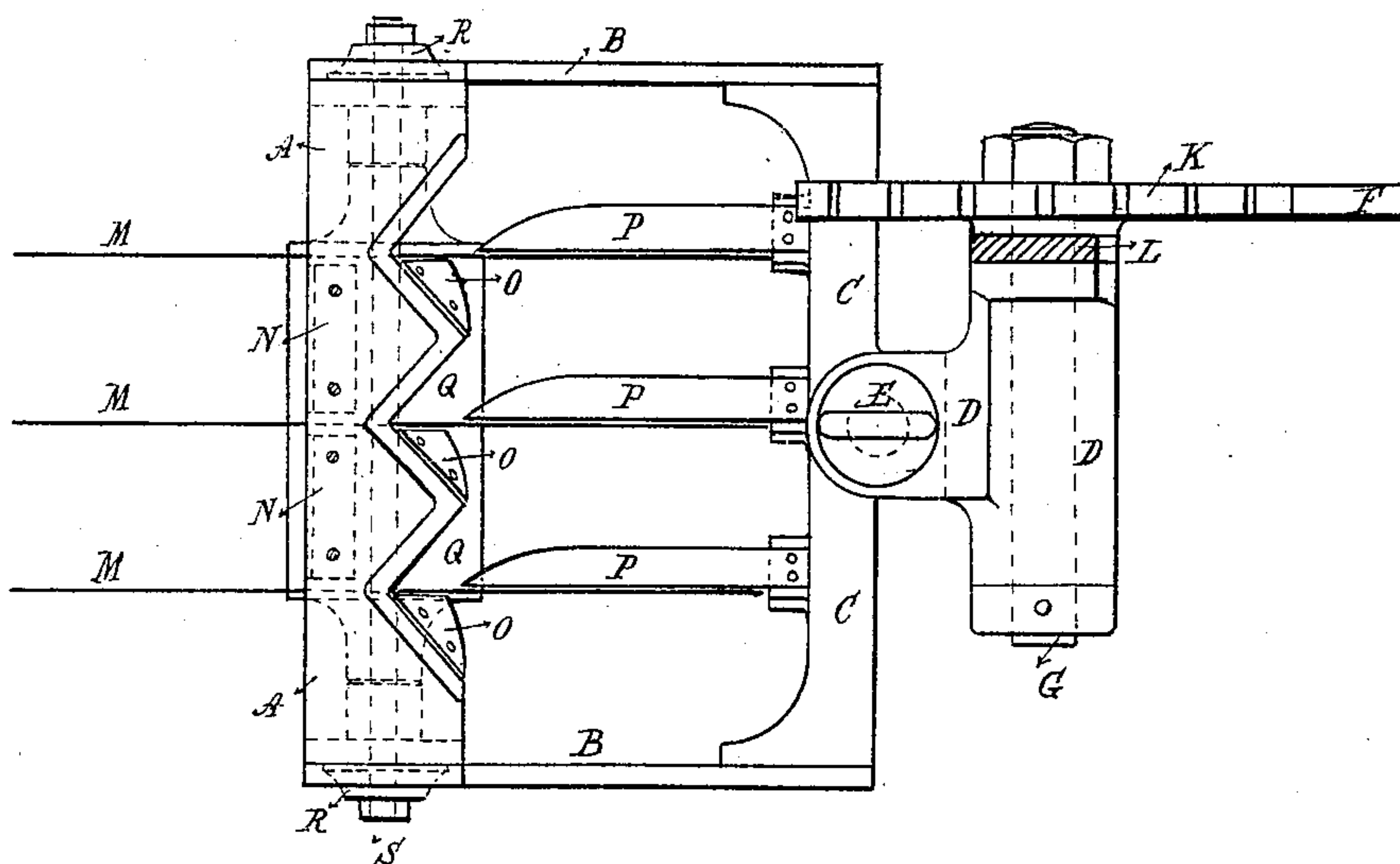


Fig. 2.

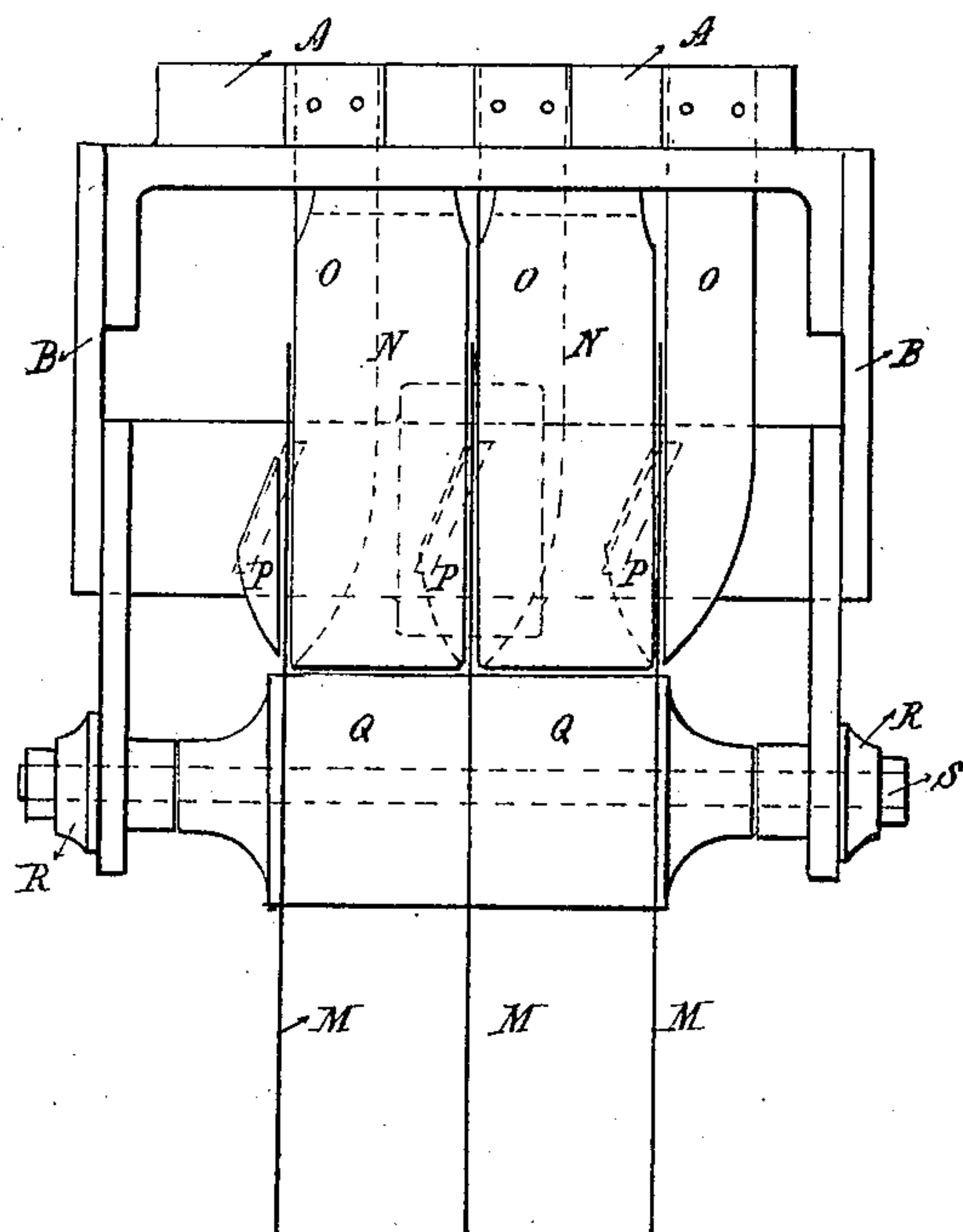


Fig. 3.

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3 Sheets—Sheet 3.

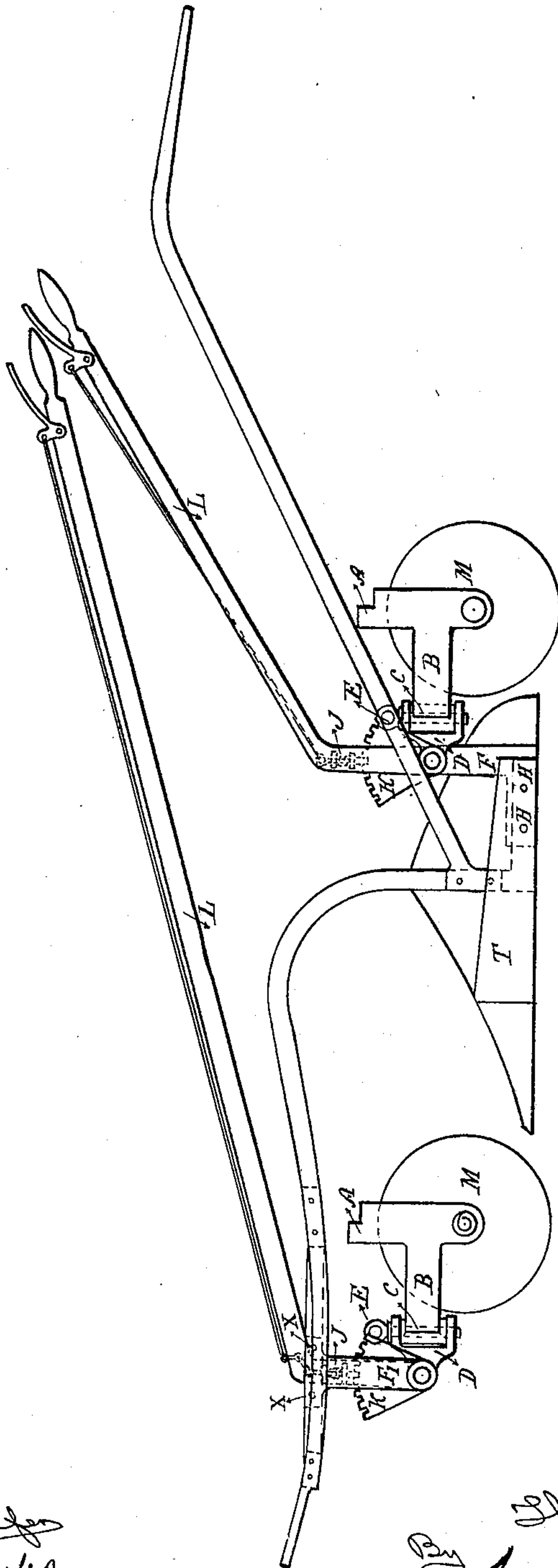


Fig. 4.

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UNITED STATES PATENT OFFICE.

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ROTARY SUBSOIL ATTACHMENT FOR PLOWS.

SPECIFICATION forming part of Letters Patent No. 620,919, dated March 14, 1899.

Application filed December 31, 1897. Serial No. 665,120. (No model.)

To all whom it may concern:

Be it known that I, THOMAS HAWKE, farmer, a subject of Her Majesty the Queen of the United Kingdom of Great Britain and Ireland, residing in the city of Auckland, in the Provincial District of Auckland and Colony of New Zealand, have invented a new and useful Rotary Subsoiler Attachment for Plows; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in rotary subsoiler attachments for plows, and has for its object a novel manner of combining and arranging a series of rotary subsoilers to a plow in such manner that they will readily operate to break up the subsoil in the furrows which the plowshare has passed over and failed to reach.

In the accompanying drawings, illustrating the invention, Figure 1 is a side elevation of my improved attachment. Fig. 2 is a plan view of the invention. Fig. 3 is an end view taken from a position in front of the subsoilers; and Fig. 4 is a side elevation of a plow provided with two sets of subsoilers according to my invention, one set being located in front and to the right of and the other behind the plowshare.

The letter B indicates the frame for supporting the subsoilers, and A a horizontal frame-piece, herein termed a "bridge," which rises from the frame B, as shown. Secured in the lower side members of the frame and extending between the same is a rod S, which is provided with a head at one end and at its opposite end is screw-threaded to receive a nut in the usual manner. Cup-bearings or washers R are provided at each end of rod S, between the head and nut thereof, respectively, and the sides of the frame. Journaled on the rod S are a series of circular blades M, three being shown in the drawings, which are spaced apart by means of collars Q. These subsoilers or blades M are preferably made of thin highly-tempered steel. In order to prevent the blades from clogging, I provide a number of breakers N, which are secured at their upper ends to the bridge A and extend

down between the blades, as shown in Fig. 3, in such manner as to practically fill up the entire space between two blades, but being out of contact therewith. These breakers will prevent the dirt clogging between blades, as will be understood. In order, further, to prevent the soil from adhering to the blades, I provide a series of cleaning-knives O and P, two knives being employed for each blade and located on opposite sides thereof. The knives O are hung from the bridge A and contact with one side of the blades M, while the knives P are secured to and project from the opposite end member of the frame in such manner as to press on the other side of the blades M. In the revolution of these blades the knives O and P will scrape the soil therefrom and keep them clean and bright.

The ends of the frame opposite the bridge A are joined by a swivel member C, which may be welded or otherwise fastened thereto, or the frame B and swivel member C may be cast in one piece. The letter D indicates the other swivel member, the two members C and D being correspondingly bored to receive a ring-bolt E, thereby forming a swivel-joint. This second swivel member D is also bored longitudinally to receive a bolt G, on which it is pivotally mounted, the lower end of a lever-arm L, which is provided with a spring-catch J, engaging notches in a segment K, being also mounted on said bolt and made fast to or cast integral with the swivel member D. The segment K is preferably cast integral with a bracket-arm F, which is provided with apertures H to permit it to be secured to the plowshare T. By means of the lever-arm L the frame B, carrying the subsoilers, may be raised or lowered to insure the blades M entering the soil to the required depth or to raise the subsoilers so that they will not operate on the ground at all. The bolt G, which supports the weight of the frame, is secured in a casting at the bottom of the segment K.

The device just described and shown in Fig. 1 is intended to operate behind the plow, as shown in Fig. 4. A device similar to this in all respects is also located in front and to the right of the plow, as likewise shown in Fig. 4, being supported by an arm F', secured

to the plow-beam and operated by a second lever-arm L. This device is intended to operate in the furrow made by the plow in its last round. This arrangement of subsoilers
5 operates with great efficiency for the purpose intended and will save a great deal of labor in preparing the soil for crops. Either or both of the subsoilers can be applied to any form of plow, whether single furrow, gang, or
10 sulky, and will operate equally well in either case.

Having thus described my invention, what I claim as new is—

1. A plow having a rotary subsoiler pivot-
15 ally secured thereto and adapted to follow in the furrow made thereby, in combination with a rotary subsoiler located to the front and right of the plowshare and adapted to

operate in the furrow made by the plow in the last round, substantially as described. 20

2. In a plow, the combination with the plowshare, of a bracket-arm secured thereon carrying a notched segment, a swivel member pivotally supported thereon, a lever-arm secured to said swivel member and having a
25 spring-catch engaging the notches of said segment, a frame having a series of circular blades rotatably mounted therein and having at one end a swivel member, and a ring-bolt for uniting said swivel members, substan- 30
tially as described.

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Witnesses:

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