

No. 786,447.

PATENTED APR. 4, 1905.

E. H. KIMBARK.

RELEASE DEVICE FOR HORSE RAKE RATCHET MECHANISMS.

APPLICATION FILED DEC. 26, 1902.

2 SHEETS—SHEET 1.

Fig. 1.

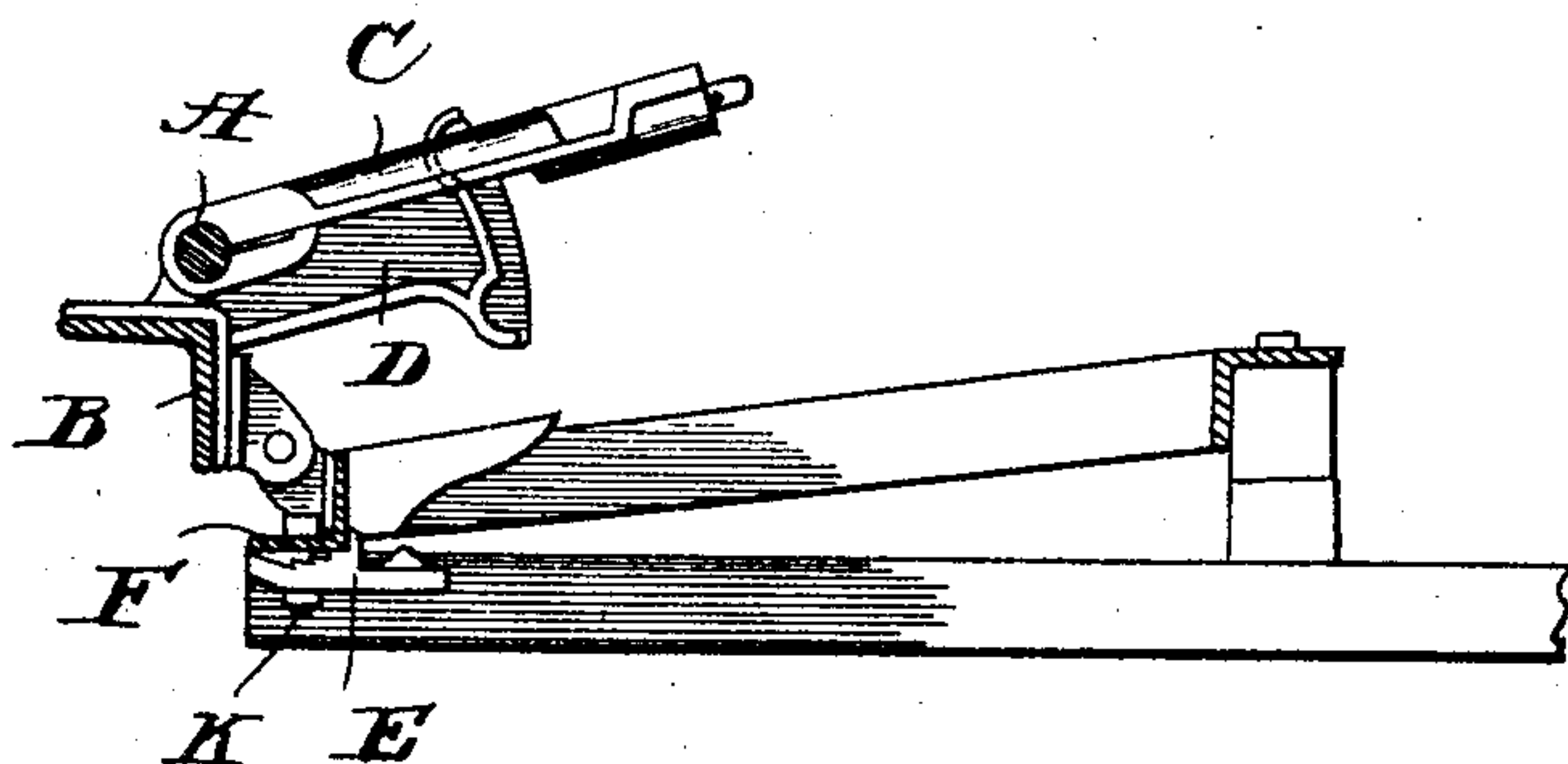


Fig. 2.

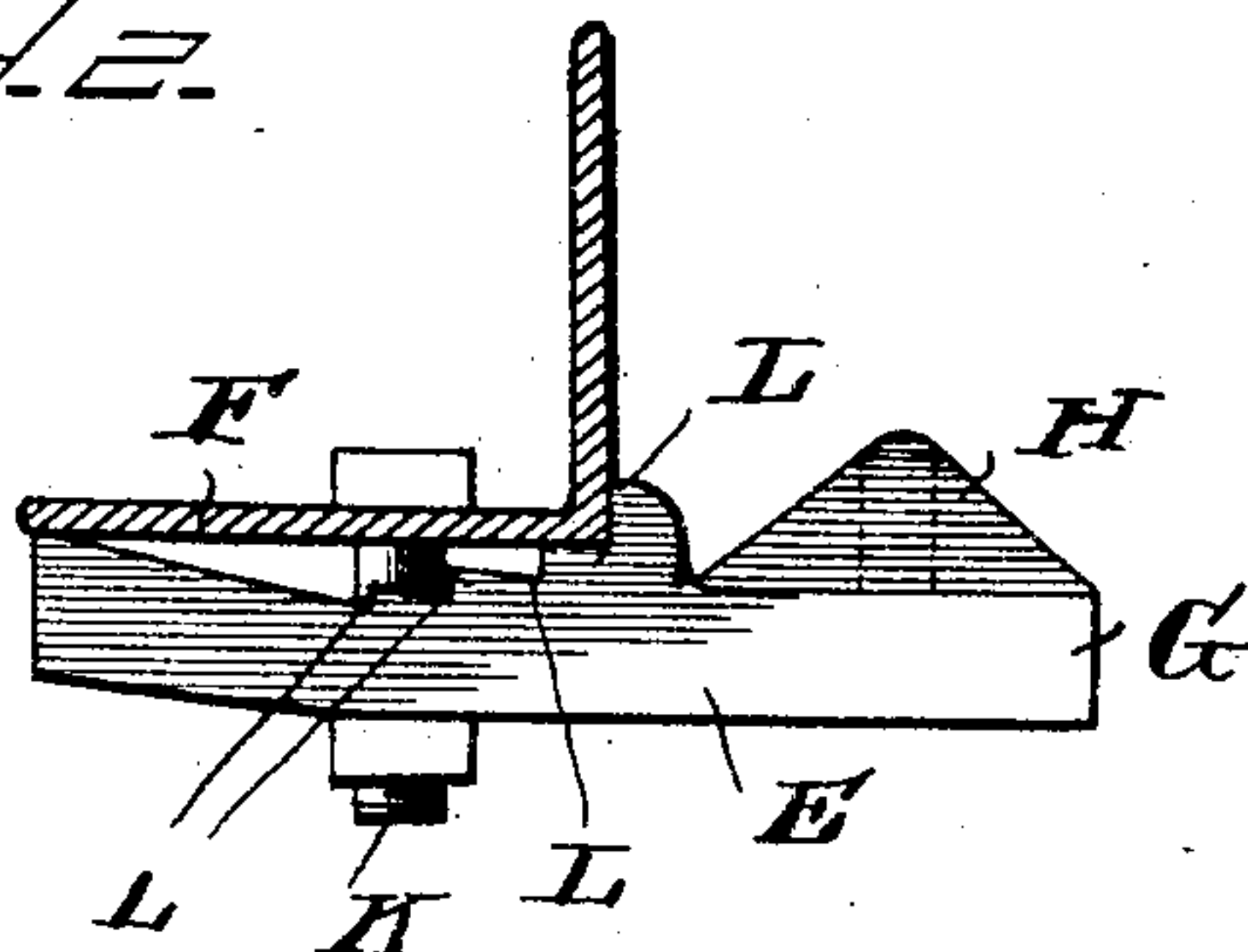


Fig. 3.

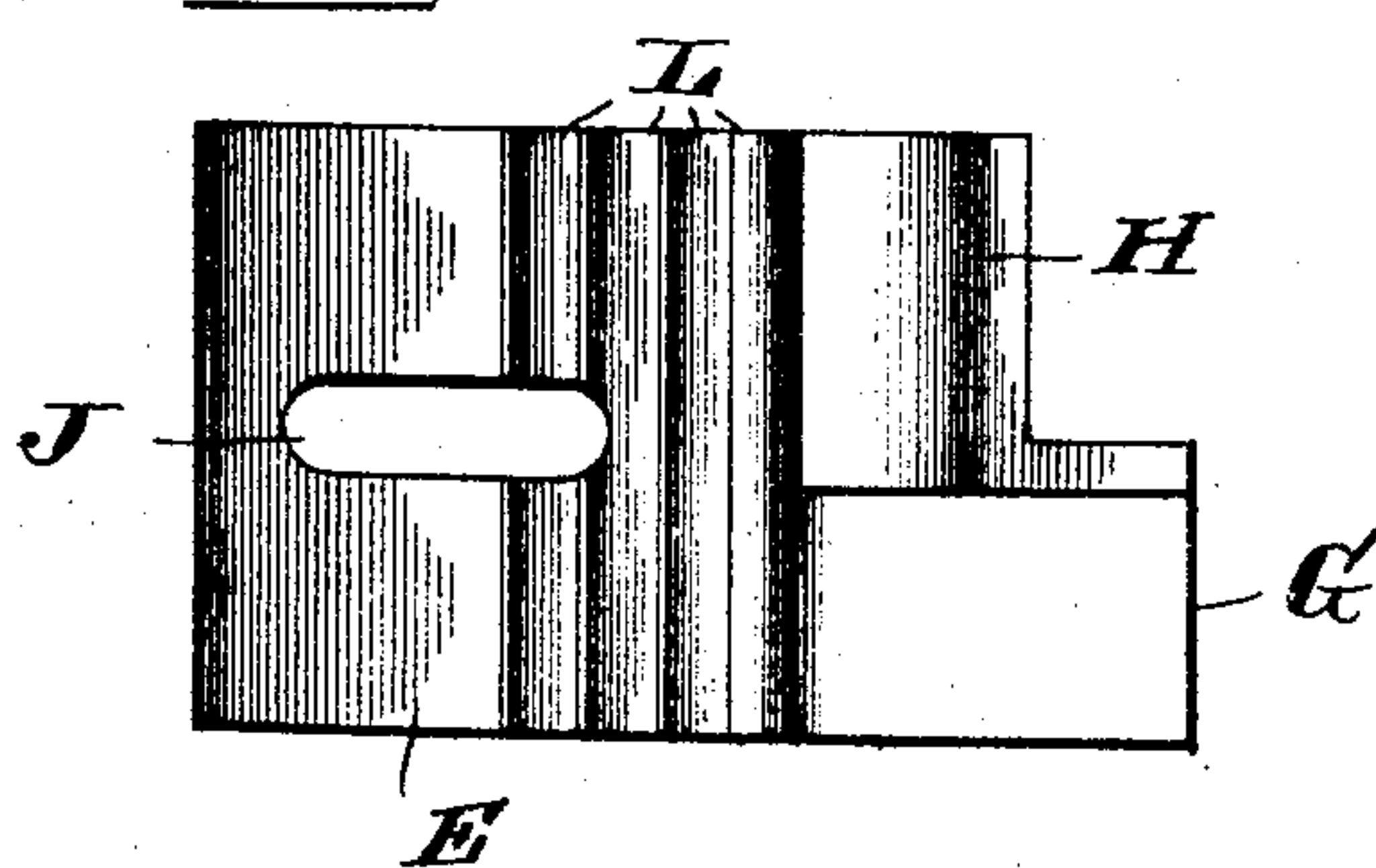
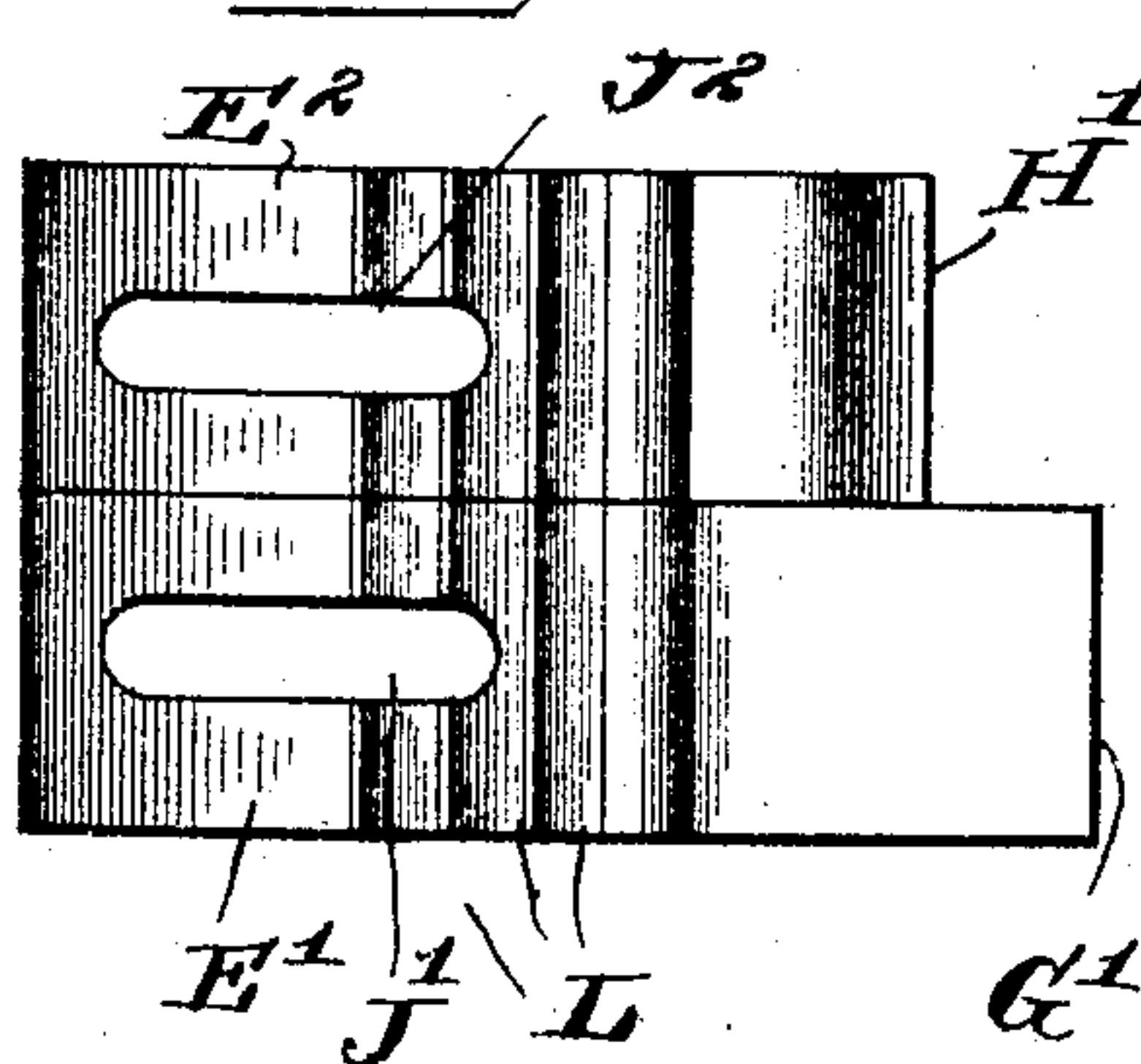


Fig. 4.



Witnesses.

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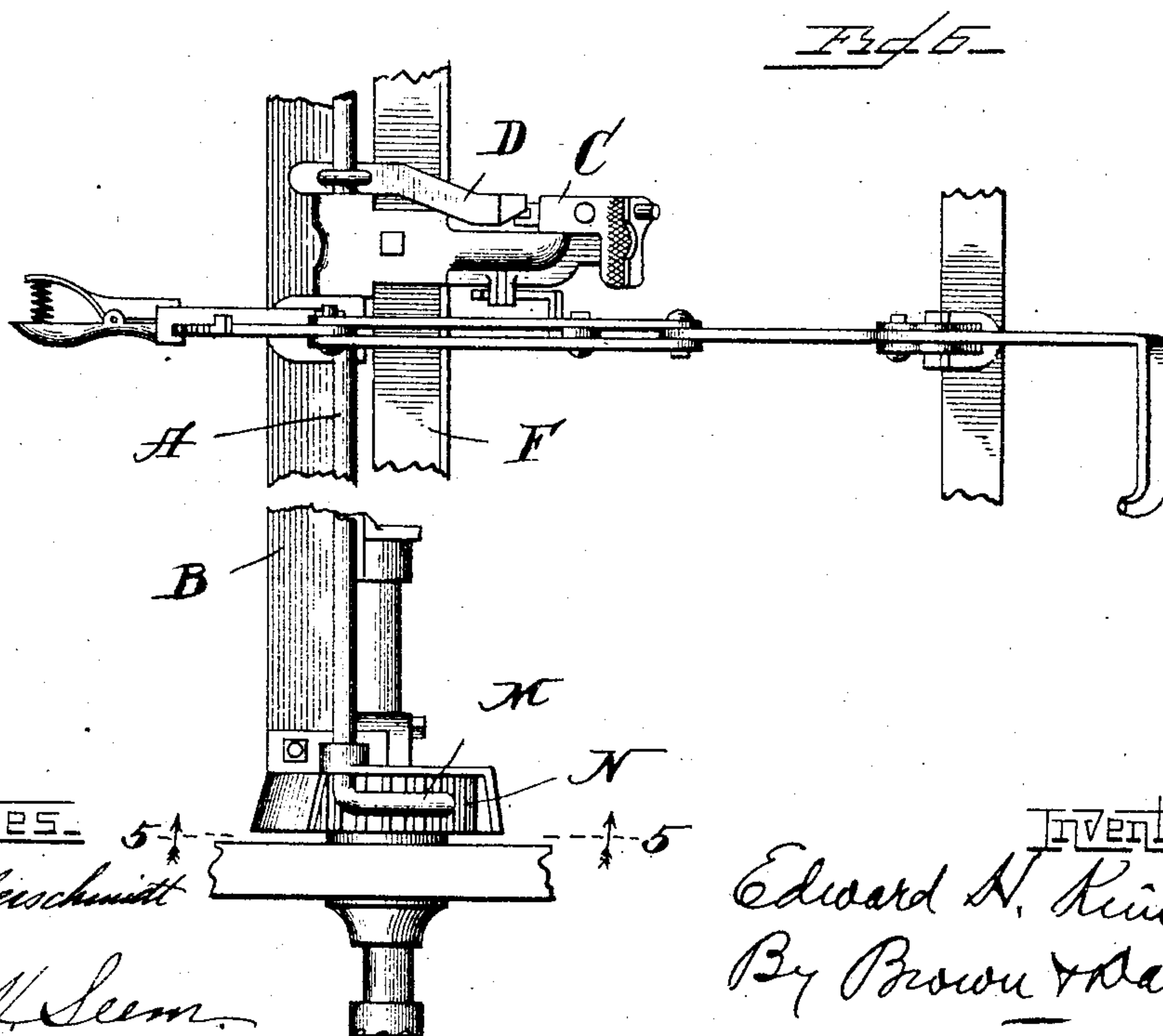
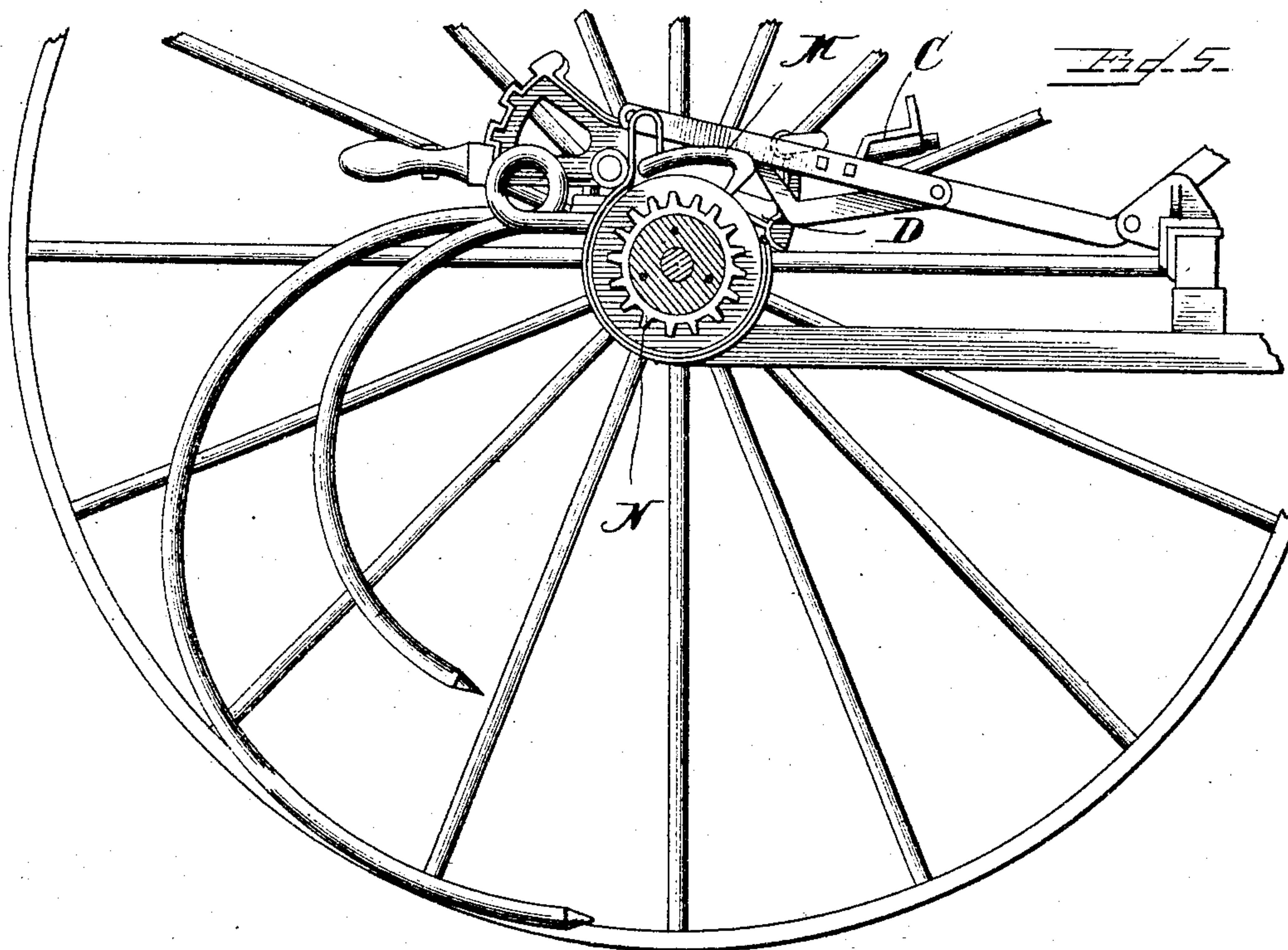
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2 SHEETS—SHEET 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

EDWARD H. KIMBARK, OF OAK PARK, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO INTERNATIONAL HARVESTER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF NEW JERSEY.

RELEASE DEVICE FOR HORSE-RAKE RATCHET MECHANISMS.

SPECIFICATION forming part of Letters Patent No. 786,447, dated April 4, 1905.

Application filed December 26, 1902. Serial No. 136,660.

To all whom it may concern:

Be it known that I, EDWARD H. KIMBARK, a citizen of the United States, residing at Oak Park, in the county of Cook and State of Illinois, have invented a new and useful Release Device for Horse-Rake Ratchet Mechanism, of which the following is a specification.

This invention relates to a release device for horse-rake ratchet mechanism.

10 The object of the invention is to provide a construction of an adjustable stop device whereby after the mechanism which raises the rake-teeth of a horse dump-rake to dump the same is disengaged the rake-tooth bar is
15 checked in its raising movement and the teeth are permitted to return to operative position before the machine has advanced too far over the ground.

Other objects of the invention will appear
20 more fully hereinafter.

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 accom-
25 panying drawings, and finally 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 view, parts
30 broken off and parts in section, taken longitudinally of the machine, showing such parts of the machine as are associated with the release device of my invention and the application thereto of a construction of release device
35 embodying my invention. Fig. 2 is a detached detail view, somewhat enlarged, showing the application of a release device to the frame of the machine. Fig. 3 is a plan view of the re-
40 lease device. Fig. 4 is a view similar to Fig. 3, showing a modified form of release device embraced within the spirit and scope of my invention. Fig. 5 is a view in section on the
45 line 5 5, Fig. 6, looking in the direction of the arrows, of a horse-rake of the construction to which my invention is adapted, parts being broken off. Fig. 6 is a broken detail view, in top plan, of the construction shown in Fig. 5.

The same part is designated by the same

reference-sign wherever it occurs throughout the several views.

In the copending joint application of Maurice Kane and Alfred C. Funk, filed September 10, 1902, Serial No. 122,839, is shown, described, and claimed a construction of
55 ratchet mechanism for rakes wherein the rake-bar carries a rod having pawls at the ends thereof, which pawls coöperate with ratchet-gears mounted upon the hubs of the traction-wheels, whereby when said pawls are thrown
60 into engagement with the gears the rake-tooth-supporting bar is coupled or engaged to revolve with the wheels to cause the rake-tooth to be swung upwardly to dump the hay, grass, or the like collected therein. In said appli-
65 cation is also disclosed a foot-lever connected to the pawl-rod, whereby said pawl-rod is rocked to effect the engagement of the pawls with the gears. In said application is also
70 disclosed an arm with which the pawl-rod-operating lever coöperates, whereby said lever is locked in the limits of its movement to lock the pawls in engaging relation with the
75 gear-teeth or to lock said pawls out of engaging relation with respect to the gear-teeth. In the practical operation of a machine embodying these features of construction, and
80 especially where the machine is advancing over the field or ground with any great amount of speed, when the pawls of the ratchet mechanism are thrown into engagement with
85 the gear-teeth the rake-tooth-supporting bar is rapidly rotated, thereby causing the rake-teeth to be thrown upwardly with considerable force and through momentum or other-
90 wise being maintained in elevated or raised position an undesirable length of time before said teeth are returned to normal operative raking position, thereby permitting the machine to advance over considerable area of
95 ground or field, and hence losing a considerable quantity of grass, hay, or other material which the machine is raking.

It is among the purposes of my invention to provide an adjustable stop to limit the rock-
ing upward movement of the rake-tooth-sup-
porting bar at the proper point, the automatic

release device for the ratchet mechanism, however, operating to release the ratchet mechanism before the stop performs its work.

It is also among the purposes of my invention to provide an adjustable stop to limit the rocking upward movement of the rake-tooth-supporting bar at the proper point, the automatic release device for the ratchet mechanism, however, operating to release the ratchet mechanism before the stop performs its work and such stop operating in a fixed and predetermined relation to such automatic release device for the ratchet mechanism. In this manner not only are the rake-teeth prevented from being carried too far in their upward swing, but they are released and permitted to return to their normal operative position before the machine has unduly advanced over the ground or field and at such time as the operator may find suited to the conditions under which the rake is being used.

Referring to the accompanying drawings, reference-sign A designates the ratchet-operating rod; B, the rake-tooth-supporting bar; C, the lever through which the rod A is operated or rocked to effect engagement or disengagement of the pawls M with the gears N, and D the arm with which the lever C coöperates and by which said lever is locked in the limits of its movement.

The parts so far described may be of the same construction and arrangement and operation as disclosed in the Kane and Funk application referred to, or may be of any other suitable or convenient construction and arrangement, and in the specific construction and arrangement thereof forms no part of my present invention except in their coöperative relation and operation with respect to the release device now to be described.

In carrying out my invention I arrange means for automatically rocking the lever C from the position occupied thereby when thrown to effect the engagement of the ratchet-pawls. It will also be understood that the arm D is connected to and revolves with the rake-tooth-supporting bar B when said bar is rotated through the engagement of the ratchet. Therefore in accordance with the principles of my invention I provide a stop arranged to engage the arm D to limit the extent of rocking movement of the rake-tooth-supporting bar. If, however, the arm D is arrested before the ratchet mechanism is disengaged the danger is incurred of breaking the parts or of arresting the rotation of the traction-wheels, and either of these results is objectionable. Therefore and in accordance with the principles of my invention I so relatively arrange the stop for the arm D and the stop through which the ratchet mechanism is disengaged that the latter will operate in advance of the former. This result may be accomplished in many different ways. I have shown in Figs. 2 and 3 one form of release

device which accomplishes the desired object; but I do not desire to be limited or restricted thereto. In the form shown I employ a block or casting E, arranged to be bolted or otherwise secured to a fixed part F of the framework and in such relation relative to the path of swing of arm D and lever C as to engage these parts, the latter in advance of the former, so as to effect a disengagement of the ratchet mechanism and immediately thereafter to arrest the rocking movement of the rake-tooth-supporting bar. In the specific form shown in Fig. 3 block or casting E is provided with a snub-end portion G, extending beyond the stop portion H and arranged to engage the lever C to effect a disengagement of the ratchet mechanism before the arm D abuts against the stop portion H. In Fig. 4 I have shown the block in two separate parts E' E², the one, E', carrying the snub-end portion G', with which the lever C engages, and the other part carrying the stop portion H', with which the arm D engages. By making these parts in separate blocks or pieces they may be relatively adjusted, so as to relatively adjust the point at which the disengagement of the ratchet mechanism and the stoppage of rotating movement of the rake-tooth-supporting bar are effected. The block E or the parts E' E² may be bolted or otherwise secured to the frame in any convenient manner. In the particular form shown and in order to secure a desirable adjustment said blocks or pieces are provided with elongated slots J J' J², through which a securing-bolt K is adapted to pass to effect the desired clamping of these parts to the framework. If desired, and in order to securely brace the blocks or pieces in adjusted position, said blocks or pieces may be provided with a series of shoulders L, arranged to engage on a convenient angle or other engaging part of the framework, as clearly shown. The snub-block and the stop for the arm D may be made in one piece or rigidly attached together, so as to operate in a fixed and predetermined relation to each other.

As above indicated, my invention is not to be limited or restricted to the specific construction of release device shown, as the principles thereof may be embodied in a wide variety of specifically different constructions, the important feature being to effect a release of the ratchet mechanism and immediately thereafter the arrest of the rotative movement of the rake-tooth-supporting bar without danger of breaking the parts or arresting the rotative movement of the traction-wheels.

Having now set forth the object and nature of my invention and constructions embodying the principles thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is—

1. In a rake, a tooth-bar and ratchet mechanism for rotating said bar, in combination with means for releasing said ratchet mechanism

ism, and adjustable means for positively arresting the rotative movement of said bar, all combined and arranged as and for the purpose set forth.

5 2. A rake-tooth bar and ratchet mechanism for rotating said bar, in combination with adjustable means for releasing said ratchet mechanism, and adjustable means for arresting the rotative movement of said bar, all
10 combined and arranged as and for the purpose set forth.

3. The combination with a rake-tooth-supporting bar and ratchet-controlling mechanism, of an adjustable stop for arresting the
15 rotative movement of said bar, and means for disengaging said ratchet mechanism before the arrest of the rotative movement of said bar, as and for the purpose set forth.

4. The combination with a rake-tooth-supporting bar, of ratchet-controlling mechanism, an adjustable stop for arresting the
20 rotative movement of said bar, and a disengaging-stop operating to disengage said ratchet mechanism before the rotative movement of said bar is arrested, as and for the purpose set forth.

5. The combination with a rake-tooth-supporting bar, a ratchet-controlling mechanism therefor, of adjustable devices for arresting
30 the rotative movement of said bar, and adjustable devices for releasing said ratchet-controlling mechanism in advance of the arrest of the rotative movement of said bar, as and for the purpose set forth.

6. The combination with a rake-tooth-supporting bar, a ratchet-controlling mechanism therefor, of stops adjustably mounted upon
40 the framework of the machine and respectively arranged to arrest the rotative movement of said bar and to disengage said ratchet-controlling mechanism, said ratchet-controlling mechanism being disengaged before the rotative movement of said bar is arrested, as and for the purpose set forth.

7. The combination with a rake-tooth-supporting bar, a ratchet-controlling mechanism therefor including an arm connected to said
50 bar and a ratchet-operating lever, of adjustable stops arranged to engage said arm and lever, said stops operating to disengage said ratchet mechanism in advance of the arrest of the rotative movement of said bar, as and for the purpose set forth.

8. The combination with a rake-tooth-supporting bar, an arm connected thereto, a
55 ratchet-controlling lever mounted on said bar, stops arranged to be engaged by said arm and lever to disengage the latter and to arrest the

rotative movement of said bar, said stops being adjustably mounted and operating to effect a disengagement of said lever in advance
60 of the arrest of the rotative movement of said bar, as and for the purpose set forth.

9. The combination with a rake-tooth-supporting bar, an arm connected thereto, a
65 ratchet-mechanism-controlling lever mounted on said bar, stops arranged to be engaged by said arm and lever, and means for relatively adjusting said stops, as and for the purpose set forth.

10. The combination with a rake-tooth-supporting bar, a ratchet-mechanism-controlling lever mounted upon said bar, a casting or plate
75 mounted upon a fixed part of the framework and having shoulders or stops, and an elongated slot, a bolt arranged to pass through said slot and framework and clamp said casting to the framework, said shoulders forming
80 means for holding said plate in the desired position of adjustment, said plate arranged to form a stop for said lever and operating to disengage the ratchet mechanism and to arrest the rotative movement of the rake-tooth-supporting bar, as and for the purpose set forth.

11. The combination of a rake-tooth-supporting bar, a ratchet-controlling mechanism therefor, of an adjustable disengaging-stop
85 operating to release said ratchet-controlling mechanism, and an adjustable arresting-stop for arresting the rotative movement of said bar, said stops arranged to operate in a predetermined and fixed relation to each other, as and for the purpose set forth.

12. In a rake, a tooth-bar adapted to be rotatively actuated, adjustable devices for
95 arresting the rotative movement of said bar, and adjustable devices for releasing the mechanism which rotates said bar, said devices operating in a fixed relation to each other, as and for the purpose set forth.

13. A rake-tooth bar and ratchet mechanism for rotating said bar, in combination with a stop operating to release said ratchet mechanism, and an additional stop for arresting
105 the rotative movement of said bar, said stops being adjustable and arranged to operate in definite relation with respect to each other, as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 20th day of December, 1902, in the
110 presence of the subscribing witnesses.

EDWARD H. KIMBARK.

Witnesses:

MAURICE KANE,
F. D. LUTHER.