

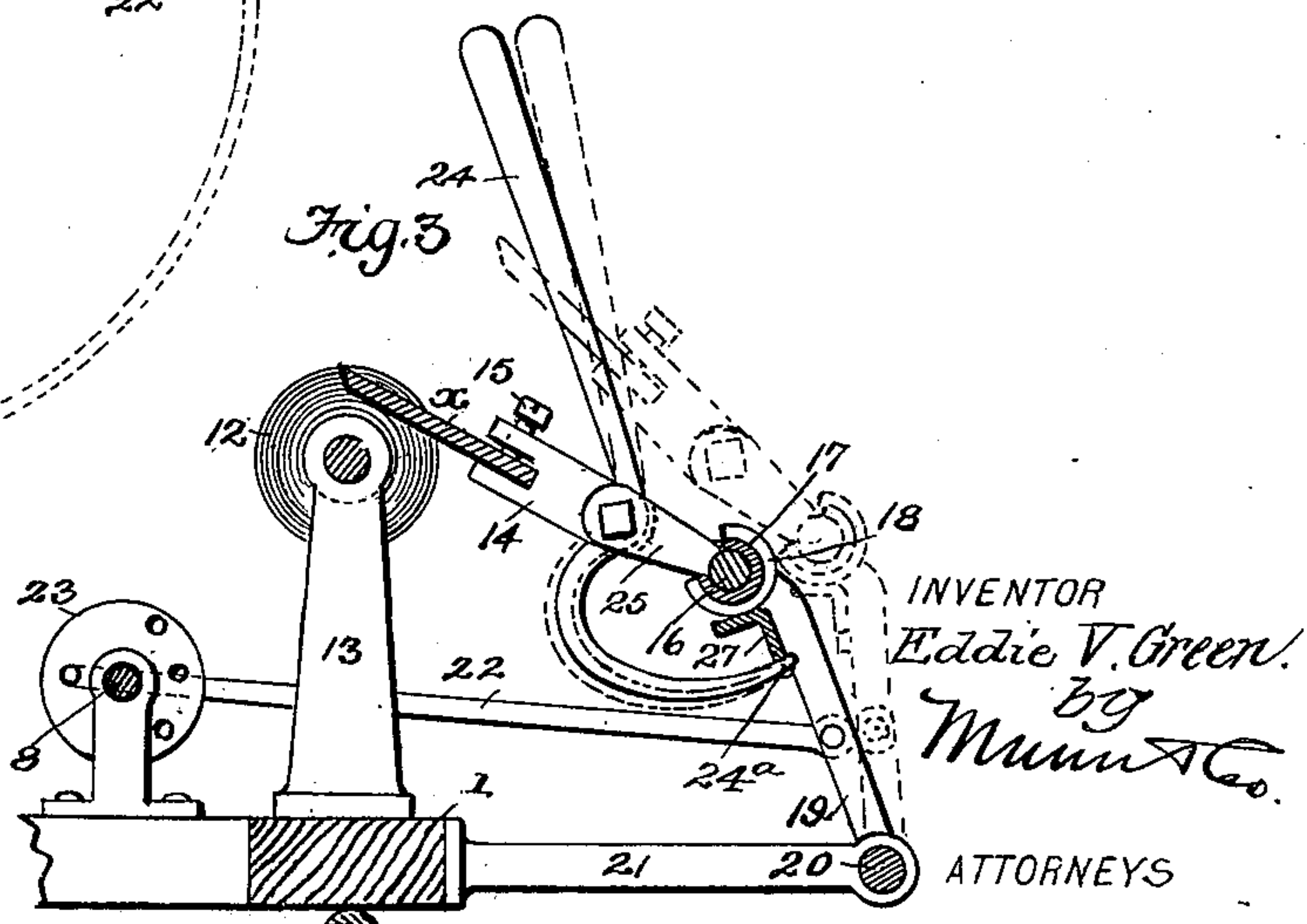
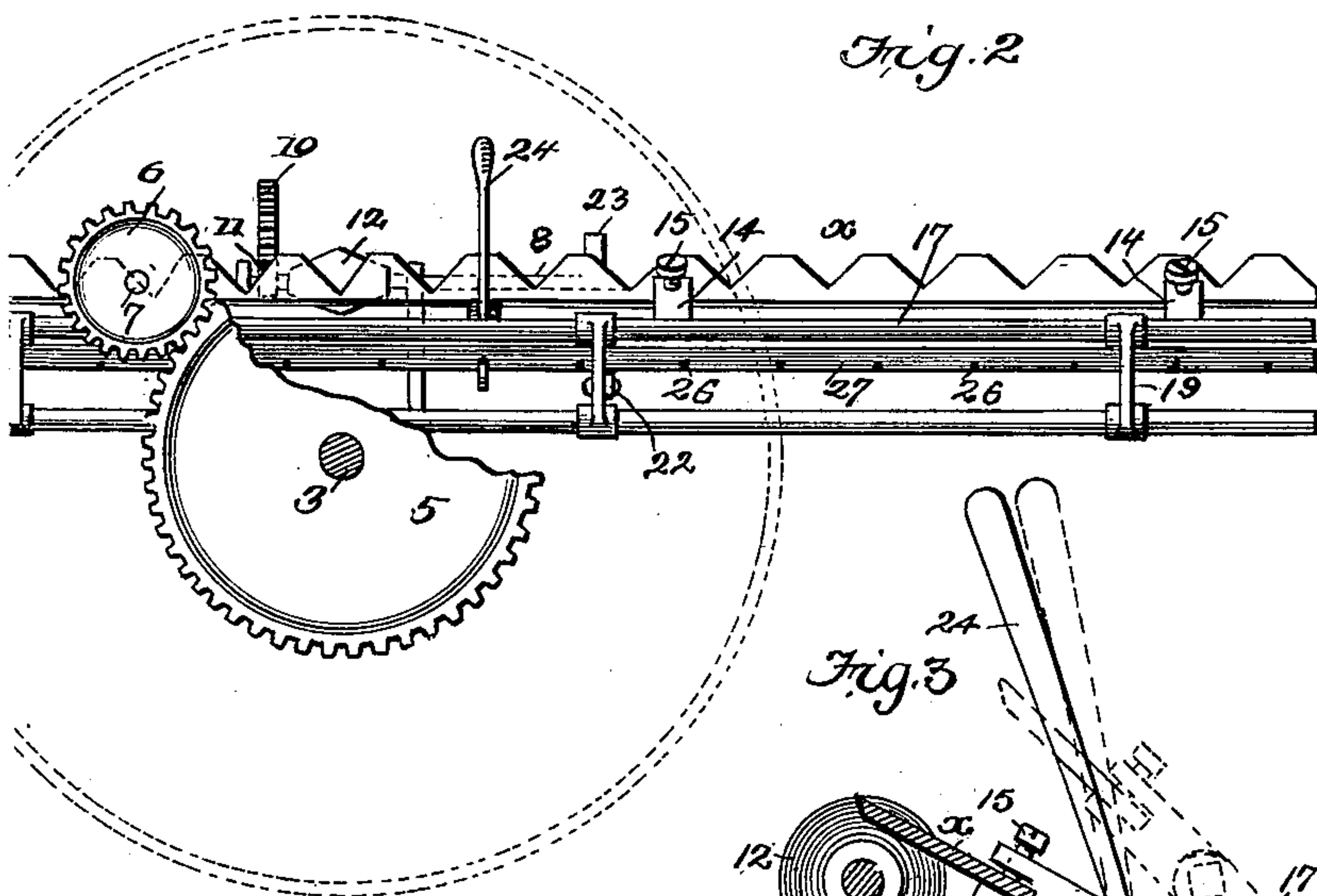
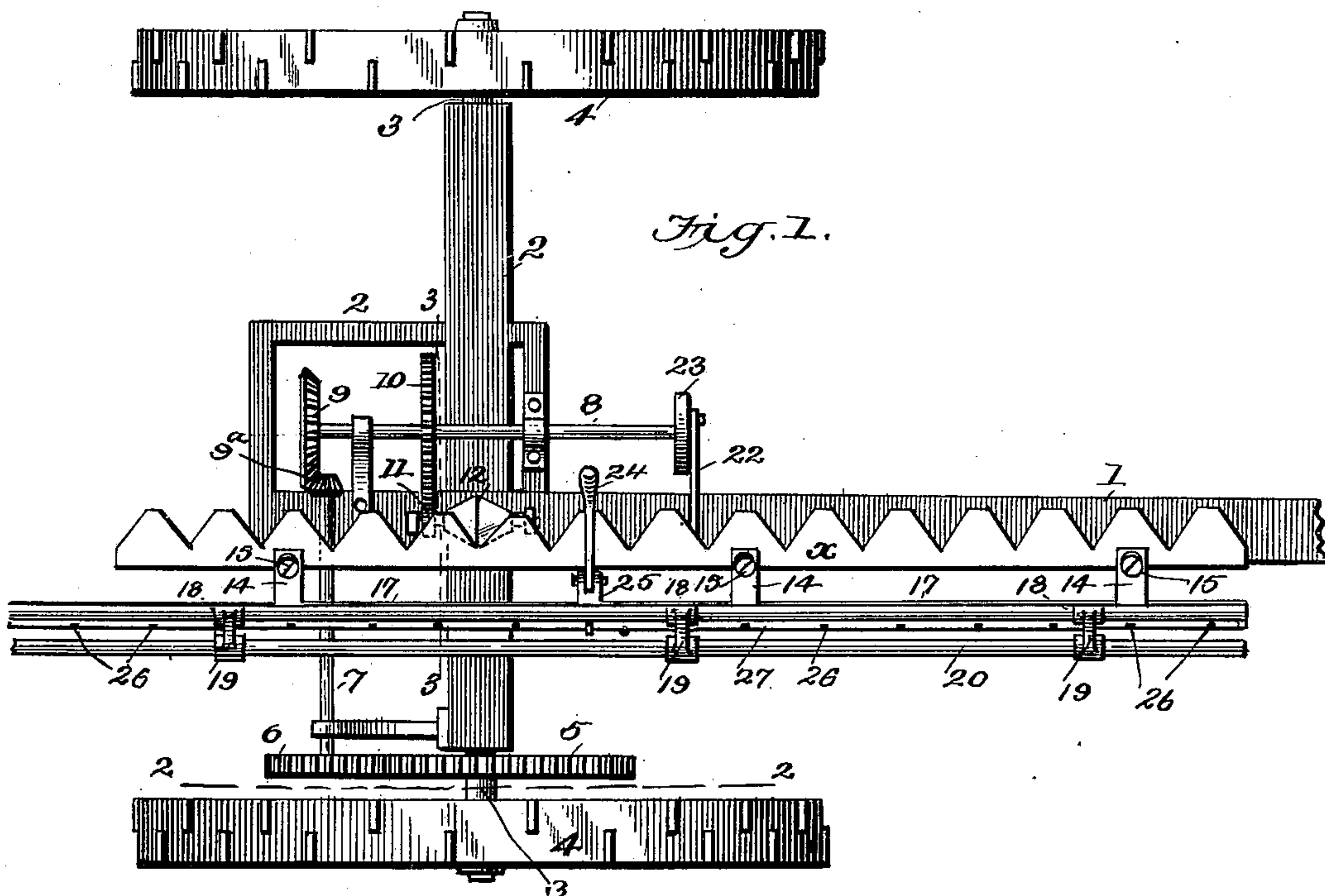
No. 630,688.

Patented Aug. 8, 1899.

E. V. GREEN.
MOWING MACHINE SICKLE GRINDER.

(Application filed Apr. 18, 1899.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDDIE VILAS GREEN, OF TOPEKA, KANSAS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO ALBERT CALVIN MARKLEY, OF SAME PLACE, AND GEORGE WESLEY MARKLEY, OF CARBONDALE, KANSAS.

MOWING-MACHINE-SICKLE GRINDER.

SPECIFICATION forming part of Letters Patent No. 630,688, dated August 8, 1899.

Application filed April 18, 1899. Serial No. 713,441. (No model.)

To all whom it may concern:

Be it known that I, EDDIE VILAS GREEN, residing at Topeka, in the county of Shawnee and State of Kansas, have made certain new and useful Improvements in Mowing-Machine-Sickle Grinders, of which the following is a specification.

I filed on March 24, 1899, Serial No. 710,391, a renewed application for an improved mechanism for automatically grinding the sickles of mowing-machines, reapers, &c., in which the grinding-disk was adapted to reciprocate while acting upon the sickles.

In this present invention I have devised an improvement in which the grinding-disk is stationary and the sickle is held by devices which are adapted to reciprocate the same.

The invention is further distinguished by the arrangement of the grinding-disk with its axis at right angles to the axle of the mowing-machine and the sickle itself is held and adapted to be moved in a line parallel with the axis of the said disk, or, in other words, parallel with the tongue of the machine.

The invention is further distinguished by an improved locking and lever mechanism, whereby the sickle-holders may be raised or reciprocated, as required, for proper manipulation of the sickle in the grinding operation.

The details of construction and arrangement of parts are as hereinafter described, reference being had to accompanying drawings, in which—

Figure 1 is a plan view of my improved grinding mechanism applied to a mowing-machine in connection with a sickle upon which it is operating. Fig. 2 is a vertical longitudinal section on the line 2 2 of Fig. 1. Fig. 3 is a transverse section on the line 3 3 of Fig. 1.

The frame of the mowing-machine may be constructed substantially in the usual manner. In this instance the tongue 1 is rigidly connected with a frame 2, which is mounted upon the axle 3, having the usual transporting-wheels 4. One or both of the latter must be fast upon the axle 3 in order to communicate rotation to the master driving-gear 5. The latter meshes with a smaller gear 6, which is mounted upon a shaft 7, (see Fig. 1,) arranged parallel to the axle and operatively

connected with another shaft 8 by means of beveled gearing 9. The said shaft 8 is arranged at right angles to shaft 7, and therefore parallel to the tongue 1. A spur-gear 10 is keyed upon shaft 8 and meshes with a pinion 11 on the shaft of the grinding-disk 12, which is arranged with its axis parallel to the tongue 1 and supported in pedestals 13. (Shown in Fig. 3.) It is apparent that as the machine advances the rotation of wheels 4 will impart through the medium of the gearing and shafts above described rotation to the grinding-disk 12. The latter is conical in form to adapt it to fit and work between two adjacent cutters of the sickle-bar α , as shown in Fig. 1, so that two cutters may be simultaneously ground and sharpened.

The means for holding and adjusting the sickle-bar α are constructed and operate as follows: The sickle-holders proper, 14, are a series of bars having slots in their outer ends to receive the sickle-bar and clamp-screws 15 for detachably securing the latter in said slots, as shown in Fig. 3. The said bars 14 are attached to a rod or shaft 16, which is held in a slotted tube 17 and adapted to slide longitudinally to enable the sickle-bar to be shifted, as required, to permit the grinding-disk to act successively on the different cutters or knives. The tube 17 is held in the jaws 18 of a series of swinging bars or arms 19, which are pivoted upon a stationary shaft or rod 20, arranged parallel to the tongue 1, and held in lateral supports 21. (See Fig. 3.) Oscillation is imparted to the arms 19 by medium of a connecting-rod 22 from a disk or crank 23, mounted upon the forward end of shaft 8. The said rod 22 is connected eccentrically with the disk 23, and the points of connection may be changed in order to impart a longer or shorter throw to the swinging arms 19, and for this purpose I provide the said disk 23 with a series of holes, (see Fig. 3,) which are arranged at different radial distances from the axis 8. Such variation in the throw of the arms 19 is obviously for the purpose of causing the grinding-disk 12 to traverse the cutters or knives of the sickle-bar to a greater or less extent, thus insuring the grinding and sharpening of the cutters from

point to heel. As shown in Fig. 3, the relation of parts is such that the arms 19 always support the holders 14 in such manner that the sickle-bar rests upon the grinding-disk 12 at any point in the throw of said arms.

The means for raising and adjusting the sickle-bar, as required, to enable the grinding-disk to act successively upon the cutters or knives are a lever 24, (see Fig. 3,) which is pivoted to an arm 25, forming an attachment of the shaft 16 or tube 17, as the case may be. The said arm 25 is arranged parallel to and in the same plane with the arms 14, constituting the sickle-holders, but is about half the length of the latter. The lower curved end 24^a of the lever 24 engages notches 26, (see Fig. 2,) formed in the lower edge of an angle-bar 27. The latter is attached to the upper portion of the swinging arms 19 and serves to rigidly connect the same. It will be seen that when the lever 24 is in the position shown by full lines, Fig. 3, its curved end 24^a will be held engaged with the angle-bar 27, and thereby lock the shaft 16, so that the sickle-bar α cannot move longitudinally. When two cutters or knives have been ground and it is required to shift the sickle-bar longitudinally, the driver of the machine seizes the upper end of the lever 24 and throws it over into the position shown by dotted lines, Fig. 3, whereby the holders 14 are raised and carry the sickle-bar with them, so that it is free of the grinding-disk. The same movement disengages the curved end 24^a of said lever from the notched bar 27, so that the lever may then be utilized as a means for moving the sickle longitudinally and lowering the same upon the grinding-disk to enable the latter to act upon the next set of cutters. Thus in the operation above described the lever is first pushed laterally or away from the grinding-disk and then pushed in a direction parallel with the tongue of the machine. In its normal position (shown in Fig. 3) the lever 24 is held locked with the bar 27 by the effect of gravity, and when thrown over laterally, as shown by dotted lines, it is held by manual force. A shoulder or stop on the arm 25 prevents the lever 24 from being thrown too far laterally, and such engagement takes place immediately the end 24^a of the lever has been thrown out of a notch in bar 27.

The arrangement of the holders 14 so that the sickle-bar is held and may be a slid parallel to the tongue 1 involves an advantage in respect to economy of space, safety, and ease of adjustment.

What I claim is—

1. The combination, with the axle, tongue, and transporting-wheels, of gearing connected with and operated from one of said wheels, the grinding-disk arranged above the axle and with its axle parallel to the tongue, a series of sickle-holders, a fixed part arranged parallel to the tongue and upon which the said holders oscillate at right angles to the tongue, to carry the sickle above and par-

allel to the latter, and means for operating such holders simultaneously with the grinding-disk, as shown and described.

2. The combination, with the axle and transporting-wheels, gearing connected with the latter, and a grinding-disk operated thereby, of a series of swinging arms, a rod connecting them with the gearing whereby they are oscillated as specified, a series of sickle-holding devices adapted for adjustment in the said arms longitudinally of the machine, and a lever connected with said devices for adjusting them as required to shift the sickle-bar on the grinding-disk, substantially as shown and described.

3. The combination, with a grinding-disk and driving-gearing connected therewith, of a series of arms adapted to oscillate toward and from the said disk, a slotted tube held in the jaws of said arms, and one or more sickle-holders which are held in said tube and adapted for adjustment, for carrying the sickle-bar longitudinally, as and for the purposes specified.

4. The combination, with the grinding-disk and driving-gearing connected therewith, of a series of arms pivoted on a fixed point and adapted to operate as specified, means for connecting said arms with the aforesaid gearing, sickle-holding devices which are adapted for adjustment on the free ends of said arms, a pivoted lever connected with the arms and having locking engagement with a bar attached to the latter, substantially as shown and described, whereby said lever may be operated to release the lock and adjust the sickle-bar as specified.

5. The combination, with the grinding-disk and driving-gearing connected therewith, of a series of arms pivoted and adapted to operate in vertical planes, a rod connecting them with an eccentric forming an attachment of said gearing, a series of sickle-holding devices having an adjustable connection with the said arms, a lever which is pivotally connected with said devices, and having a locking engagement with the arms which is maintained by gravity when the lever is in normal position, substantially as shown and described.

6. The combination, with an axle and transporting-wheels, a grinding-disk mounted on the latter, gearing for driving the same, sickle-holding devices arranged in planes parallel to the axle, a series of swinging supports for said devices which are adapted to oscillate in planes parallel thereto, a gravity-lever, having pivotal connection with the sickle-holding devices and its curved lower end having locking engagement with said supports and adapted for use in raising and lowering the sickle-bar and otherwise adjusting the same as required, substantially as shown and described.

EDDIE VILAS GREEN.

Witnesses:

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