(No Model.)

E. G. PASSMORE.

Pawl and Ratchet Device.

No. 233,637. Patented Oct. 26, 1880.

FIG. 1.

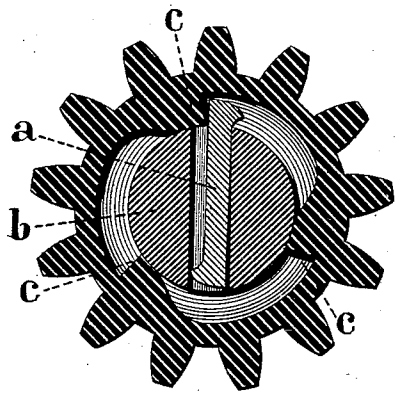


FIG. 2.

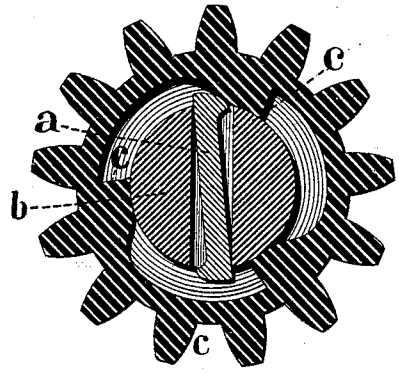


FIG. 3.

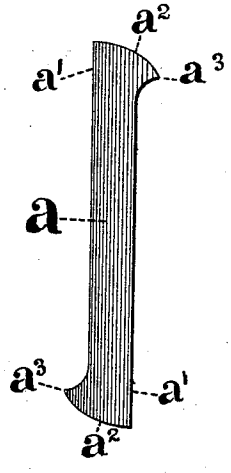
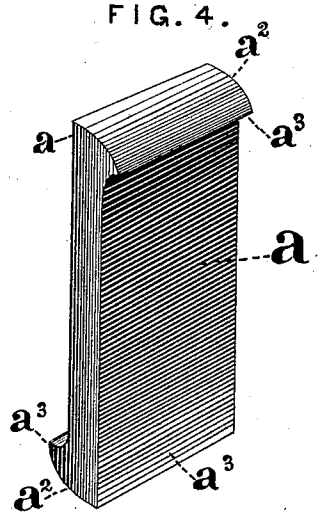


FIG. 4.



WITNESSES:

Geo. A. Vaillant.

J. Walter Douglass

INVENTOR.

E. G. Passmore.

by Henry Baldwin Jr.

Attorney.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EVERETT G. PASSMORE, OF PHILADELPHIA, PENNSYLVANIA.

PAWL-AND-RATCHET DEVICE.

SPECIFICATION forming part of Letters Patent No. 233,637, dated October 26, 1880.

Application filed September 25, 1880. (No model.)

To all whom it may concern:

Be it known that I, EVERETT G. PASSMORE, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Pawl-and-Ratchet Devices, of which improvement the following is a specification.

My invention relates to that class of such devices in which inclines and shoulders on the interior of a sleeve or barrel operate a pawl playing radially in a slot through the shaft, so that when the barrel is rotated in one direction one end of the pawl is protruded through the slot on one side of the shaft and catches against one of the shoulders, so as to lock the shaft to the sleeve and thus cause them to rotate together, and when the barrel is rotated in the reverse direction the pawl, protruding from the slotted shaft, simply travels along the faces of the inclines on the sleeve without catching against the shoulders and without turning the sleeve. The sleeve or barrel being provided on its exterior surface with suitable teeth, it becomes a pinion and serves as a backing-ratchet, the construction and operation of which are well understood.

As such devices have been heretofore constructed the pawl has been made flat on both sides, and has had one of its ends beveled on one side and the other end beveled on its opposite side, so that whichever end of the pawl is protruded from the shaft it presents in all cases a plane surface to the shoulders, and an inclined surface to the inclines on the sleeve, thus insuring the resistance necessary to turn the barrel with the shaft in one direction, and promoting the travel of the pawl along the inclines without obstruction in the other direction.

In the practical operation of such devices, as applied to lawn-mowing machines, I have found that these backing-ratchets, although working well when new and while the faces of the shoulders and the ends of the pawl remain perfect, so that the pawl catches against the shoulders, yet are subjected to hard and sudden blows in reversing the machine, and that hence the faces of the shoulders and the ends of the pawl rapidly become worn, the pawl especially on its plane side, and as these faces and ends become rounded the pawl tends to slip past the shoulders without catching against them. Moreover, this wear extends so far as to reduce the shoulders and to shorten the pawl, greatly impairing the efficiency of this device by reason of the increasing tendency of the pawl to slip past the shoulders without catching.

It is the object of my improvement to prevent this slipping of the pawl, and to maintain the operative efficiency of the backing-ratchet; and to this end my invention consists in somewhat increasing the width of the slot in the shaft relative to the thickness of the pawl, giving to the sides of the slot a true flush edge, and while still making the pawl with flat sides and beveling the ends, yet extending each of the beveled ends so that it will project past the plane surface on one side, these projections constituting lips, one of which, whenever the pawl is protruded from the shaft so as to catch and lock the sleeve, will be forced over and down upon the flush edge of the slot, and the protruded end of the pawl, being thus held up at a definite distance above the shaft by this projecting lip resting on the side of the slot, will present at its back a plane surface, which will sustain the shock of reversing the ratchet upon the full extent of its projection, thus insuring and maintaining in all cases a positive bearing of the pawl against the shoulder. On the other hand, the increased width of the slot accommodates the projecting lips on the ends of the pawl, and, while allowing the pawl to play through the slot as freely as heretofore, gives an extended angle of inclination at the ends of the pawl, promoting their travel upon the faces of the inclines on the sleeve when the sleeve is turned backward.

In the accompanying drawings, which form part of this specification, I have shown the construction and illustrated the operation of my improved pawl-and-ratchet device as applied to a backing-ratchet for lawn-mowing machines.

Figure 1 is a vertical section through the center of the backing-ratchet, showing the pawl *a* protruded from the shaft *b* in the forward movement of the machine, the flat surface of the protruding end of the pawl being locked against the shoulder *c* on the interior

of the sleeve, while the beveled side of the projecting end is forced over upon the side of the slot, and the lip on this end of the pawl is supported upon the edge of the slot, the opposite end of the pawl being entirely within the slot. It is readily seen that the pawl thus positively sustained above the shaft, and with the flat side thus positively locked against the shoulder, will always present a definite length of surface to the face of the shoulder.

Fig. 2 is a vertical section through the center of the backing-ratchet, (shown in Fig. 1,) but with the pawl in the act of being protruded from the shaft in the backward movement of the machine. the beveled surface of one of the protruding ends of the pawl being depressed by the face of the incline on the sleeve, while the beveled surface of the other end of the pawl is being presented to the face of another incline, which is approaching it. It is readily seen that the pawl thus travels easily upon the inclines without catching against the shoulders as long as the machine is being backed, while, at the same time, the flat sides of the ends of the pawl are protruded beyond the shaft so as to readily engage one of the shoulders upon the reversal of the movement and force the pawl again to the position shown in Fig. 1.

Fig. 3 is a side view, on an enlarged scale, of the pawl *a*, and Fig. 4 is a perspective view of the same.

In Figs. 3 and 4 I have marked the flat surfaces of the ends of the pawl *a'*, the beveled ends a^2, and the projecting lips a^3.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

As an improvement in pawl-and-ratchet devices, substantially such as hereinbefore described, the combination, with the inclines on the sleeve or barrel and the slotted shaft, of a pawl having projecting lips at its ends, the combination being and operating as and for the purposes described.

EVERETT G. PASSMORE.

Witnesses:
J. WALTER DOUGLASS,
GEO. F. FINDLAY.