

Aug. 7, 1951

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2,563,719

ROPE STARTER

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2 Sheets-Sheet 1

Fig. 2

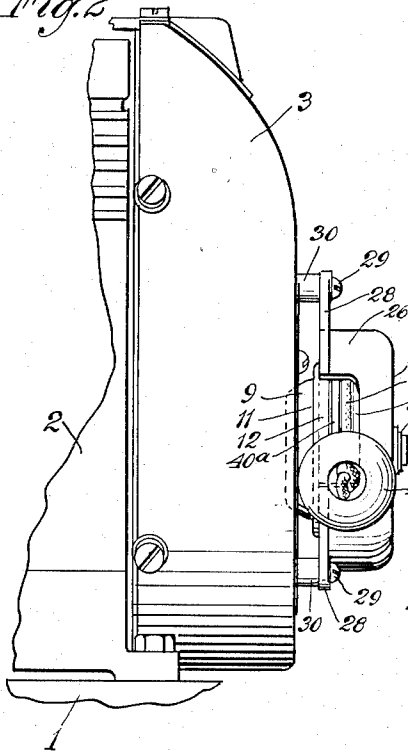


Fig. 1

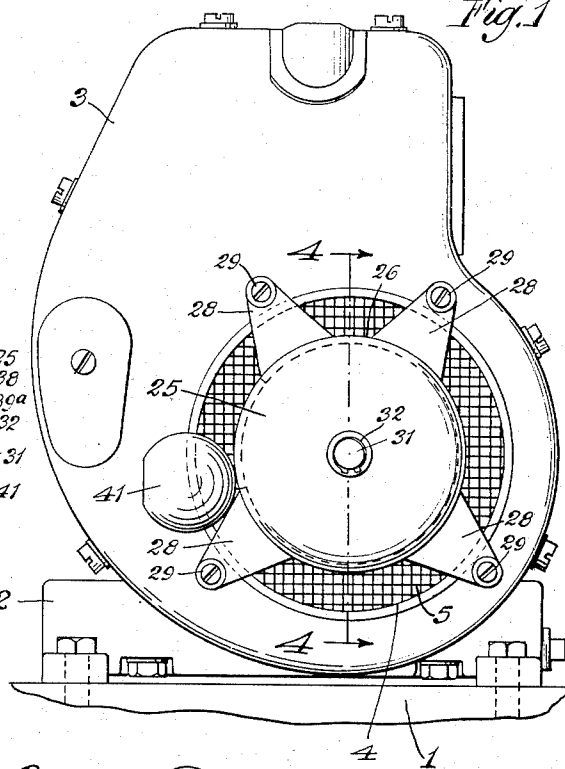
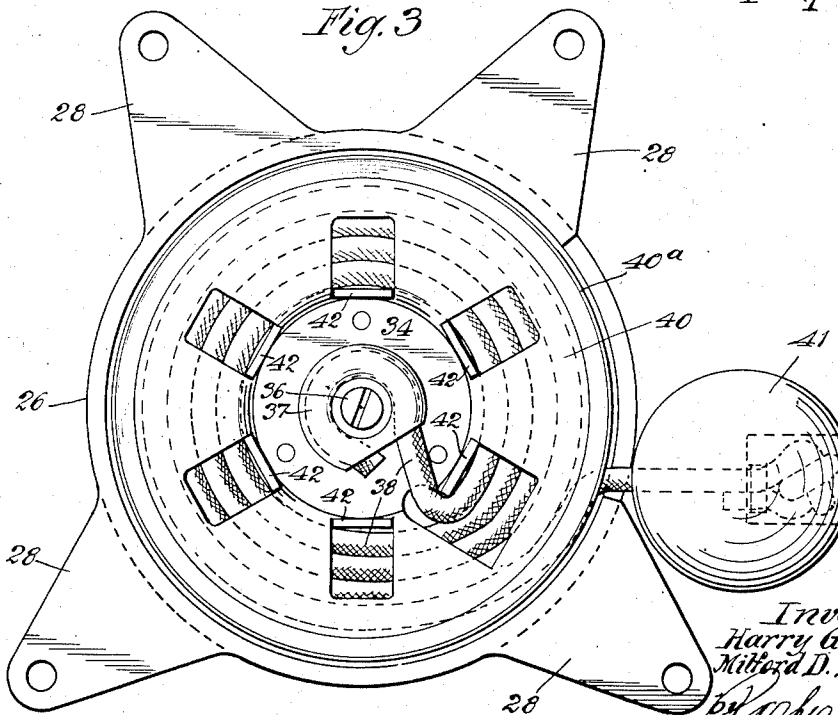


Fig. 3



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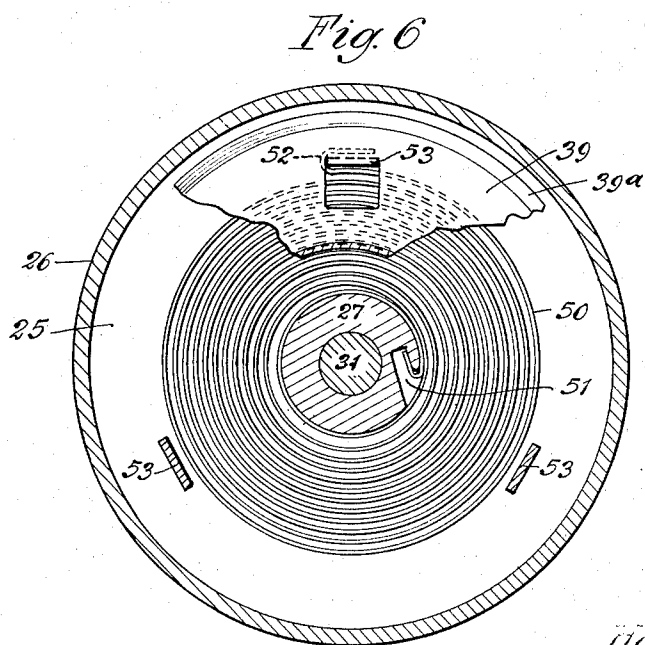
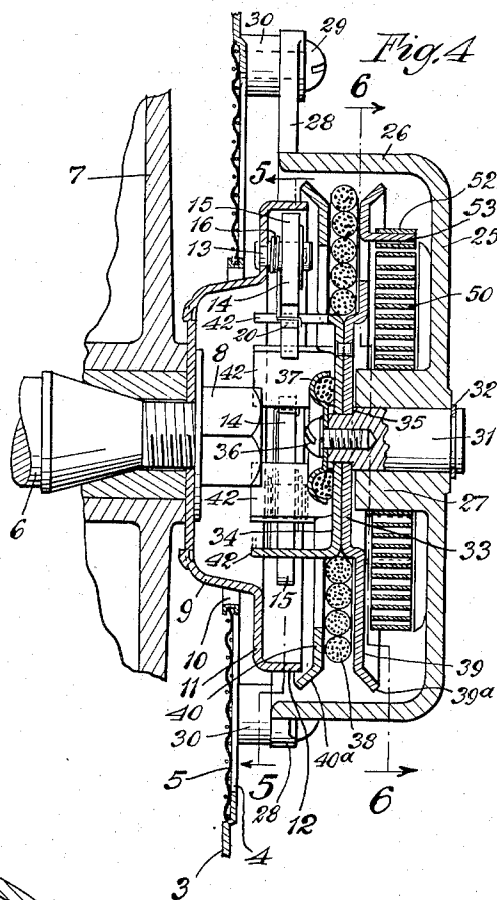
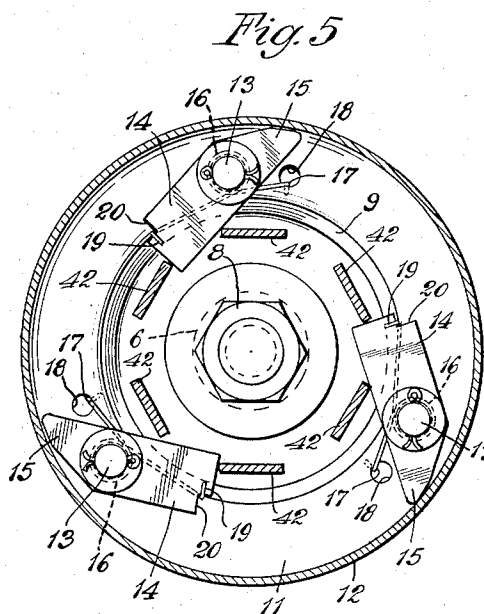
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UNITED STATES PATENT OFFICE

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ROPE STARTER

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7 Claims. (Cl. 123—185)

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Our invention relates to an improvement in rope retrievers and has for one purpose to provide an improved and simple retriever structure.

Another purpose is to provide an improved rope retriever for starting internal combustion engines.

Another purpose is to provide a combined rope retriever and shroud for internal combustion engines.

Another purpose is to provide a rope retriever arranged to cause a minimum interference with the flow of air to the engine.

Another purpose is to provide an improved reel and return structure for rope retriever.

Other purposes will appear from time to time in the course of the specification and claims.

We illustrate the engine more or less diagrammatically in the accompanying drawings wherein:

Figure 1 is a detailed elevation of an engine to which the rope retriever is applied.

Figure 2 is a partial side elevation of the structure in Figure 1.

Figure 3 is an inner view of the rope retriever proper, on an enlarged scale.

Figure 4 is a section on an enlarged scale on the line 4—4 of Figure 1.

Figure 5 is a section on the line 5—5 of Figure 4; and

Figure 6 is a section on the line 6—6 of Figure 4.

Like parts are indicated by like symbols throughout the specification and drawings.

Referring to the drawings, 1 indicates any suitable base upon which is mounted the engine structure generally indicated as 2.

The details of the structure form no part of the present invention.

3 generally indicates a shroud having an air inlet aperture 4 shown as partially closed by a screen 5. It will be understood that any suitable fly wheel structure may be mounted within the shroud. 6 generally indicates a portion of the motor shaft which carries any suitable rotating structure 7 which may be part of a fly wheel or a combined fly wheel and fan. The parts may be held together by any suitable screw 8 which also positions a shell 9, rotating with the shaft 6 and separated by the gap 10 from the inner edge of the screen 5. The shell 9 includes an outer extension 11 terminating in a generally cylindrical wall 12. The outer extension 11 carries a series of pins 13 upon which are pivoted suitable levers 14 having inner ends 15 of substantially less extension and mass than the levers

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14. The ends 15 are formed or tapered to permit the inner ends 14 to move into the position in which they are shown in Figure 5, in respect to the action of the coil spring 16. Each such spring 16 is coiled about one of the pins 13 but has an end 17 abutting against the edge of an appropriate aperture 18 in the portion 11, and an opposite end 19 thrusting against a notch 20 in the lever portion 14. The thrust of the spring is so proportioned that when the motor shaft 6 is rotating the levers are centrifugally held in withdrawn position, with the lever portion 14 approaching or engaging the inner surface of the circumferential wall 11 of the shell 9.

Mounted on the shroud 3 is a fixed cup or support 25 shown as having a circumferential wall 26 and inwardly extending central hub 27 and a plurality of outwardly extending arms 28. These arms 28, which may for convenience be four in number, may be secured to the surface of the shroud 4 by any suitable screws 29 and spacers 30. Positioned in the hub 27 is the rotating pin 31 which is held against unintended movement, for example, by the spring or lock ring 32. At its inner end the rotating pin or shaft 31 carries a reel structure having an outer component 33 and an inner component 34. The inner portions of the two components are firmly locked together against a ledge 35 on the pin 31 being held, for example, by the screw 36 which also secures the clamp 37 into which extends the end of the actuating rope or cable 38. The two components 33, 34 are separated about their outer portions as at 39, 40, these portions terminating in outwardly inclined lips 39a and 40a. In the space thus provided the cable 38 is wound, the free end of the cable having secured to it a ball or handle 41 such as is shown in Figures 1 to 3. The inner component 34 is also provided with inwardly struck ears 42 which are adapted to engage or be engaged by the inner ends of the levers 14 when the parts are in the position of Figure 5, with the motor shaft 6 at rest. At that time the springs 16 are effective to rotate the lever portions 14 into opposition with the opposite members 42, in a clutching or actuating relationship. 50 is a spring which surrounds the exterior of the hub 27 and which has an inner end entering the notch 51. Its outer end 52 extends about an ear 53 struck outwardly from the portion 39 of the member 33. As shown in Figure 6, we illustrate three of the ears 53, so that one will always be available for the easy securing of the spring 50. It will be understood that the spring 50 is effective normally to reel in the reel structure which

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includes the components 33, 34, with the cable 38 in the position into which it is shown in Figures 3 and 4 and with the ball or handle 41 in the position of Figure 3.

Assume that the parts are at rest and that the motor is not in operation. Then the levers 14, which constitute clutch elements for the moving of parts of the motor are opposed to the ears 42 as shown in Figure 5. The ball 41, and the cable 38 is reeled in by the spring 50, and ready for use. The user grabs the ball 41 and gives a rather sharp pull on the cable. The result is a clockwise rotation of the ears 42, referring to the position of the parts as shown in Figure 5. This results in a spinning of the motor shaft 6 which is normally effective to start the motor. If the first pull on the rope 38 is not effective, the spring 50 immediately returns the rope and reel to the proper position for another starting pull on the rope. As soon as the motor shaft 6 begins to rotate, the centrifugal force withdraws the lever 14 into inoperative position.

It will be realized that whereas we have described and claimed a practical and operative device, nevertheless many changes may be made in size, shape, number and disposition of parts without departing from the spirit of our invention. We therefore wish our description and drawings to be taken as in a broad sense illustrative and diagrammatic, rather than as limiting us to our specific showing herein.

We claim:

1. In a rope retriever for motors and the like, a shroud having an inlet aperture in line with the shaft of a motor, a starting member adapted to be mounted on said motor shaft and including a clutch portion extending through said aperture, a base mounted on said shroud in alignment with said aperture, said base including a generally circumferential wall defining a housing, the inner edge of said wall being spaced from said shroud, said clutch portion being in the general form of a cup, the outer circumferential edge of said cup extending within said base housing, a reel mounted on said base for rotation generally coaxially with said clutch portion, clutch elements on said reel, movable clutch elements on said clutch portion, and means for imparting rotation to said reel, said movable clutch elements being mounted for centrifugal movement into inoperative position in response to rotation of said clutch portion.

2. The structure of claim 1, characterized by and including a clutch portion in the general form of a cup having a circumferential flange, a plurality of levers rotatably mounted on said cup and having ends adapted to extend from the point of said mounting into the interior of said cup, and opposite ends adapted to extend a shorter distance from said mounting point, said last-named ends being further adapted to contact said circumferential flange when said first-named ends reach their point of closest approach to the interior of the cup and spring means formed and adapted normally to urge the inner ends of said levers toward the interior of said cup, said spring means being of insufficient strength to resist the centrifugal tendency of said levers to swing outwardly into inoperative position when the clutch portion is rotated.

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3. The structure of claim 1, characterized by and including a reel having two sheet metal components, the inner portions of which abut, and the outer portions of which are separated to receive a cable.

4. The structure of claim 1, characterized by and including a reel having two sheet metal components, the inner portions of which abut, and the outer portions of which are separated to receive a cable, one of said components having unitary clutch lugs struck outwardly therefrom at the point of separation of said outer portions.

5. The structure of claim 1, characterized by and including a reel having two sheet metal components, the inner portions of which abut, and the outer portions of which are separated to receive a cable, one of said components having one or more outwardly struck lugs adapted to receive a spring end.

6. The structure of claim 1, characterized by and including a coil spring, one end of which is secured to the base and the other to the reel, said spring being formed and adapted to move the reel in one direction of rotation, and a cable surrounding said reel and having an exterior handle, said cable being adapted, in response to a pull on said handle, to rotate the reel in opposition to said coil spring, said coil spring being adapted thereafter to return the reel to initial position.

7. In a rope retriever for motors and the like, a shroud having an inlet aperture in line with the shaft of a motor, a starting member adapted to be mounted on said motor shaft and including a clutch portion extending through said aperture, a base mounted on said shroud in alignment with said aperture, a reel mounted for rotation generally coaxially with said clutch portion, clutch elements on said reel, movable clutch elements on said clutch portion, and means for imparting rotation to said reel, said base having an inwardly extending hub, a stub shaft rotatably mounted in said hub, said reel being mounted on said shaft, means for holding said shaft against unintended endwise movement in said hub, and a coil spring surrounding said hub, one end of said spring being secured to the shroud, and the other to the reel.

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MILFORD D. BURROWS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,067,257	Kenyon	July 15, 1913
1,132,160	Casgrain	Mar. 16, 1915
1,263,596	Odein	Apr. 23, 1918
1,351,399	Odier	Aug. 31, 1920
1,858,583	Fahrney	May 17, 1932
2,018,229	Rayniak	Oct. 22, 1935
2,181,805	Fritz	Nov. 28, 1939
2,204,750	Conover	June 18, 1940
2,266,865	Herrington	Dec. 23, 1941
2,278,547	Herrington	Apr. 7, 1942
2,374,685	Kissel	May 1, 1945
2,460,420	Kincannon	Feb. 1, 1949
2,480,550	Catlin	Aug. 30, 1949