

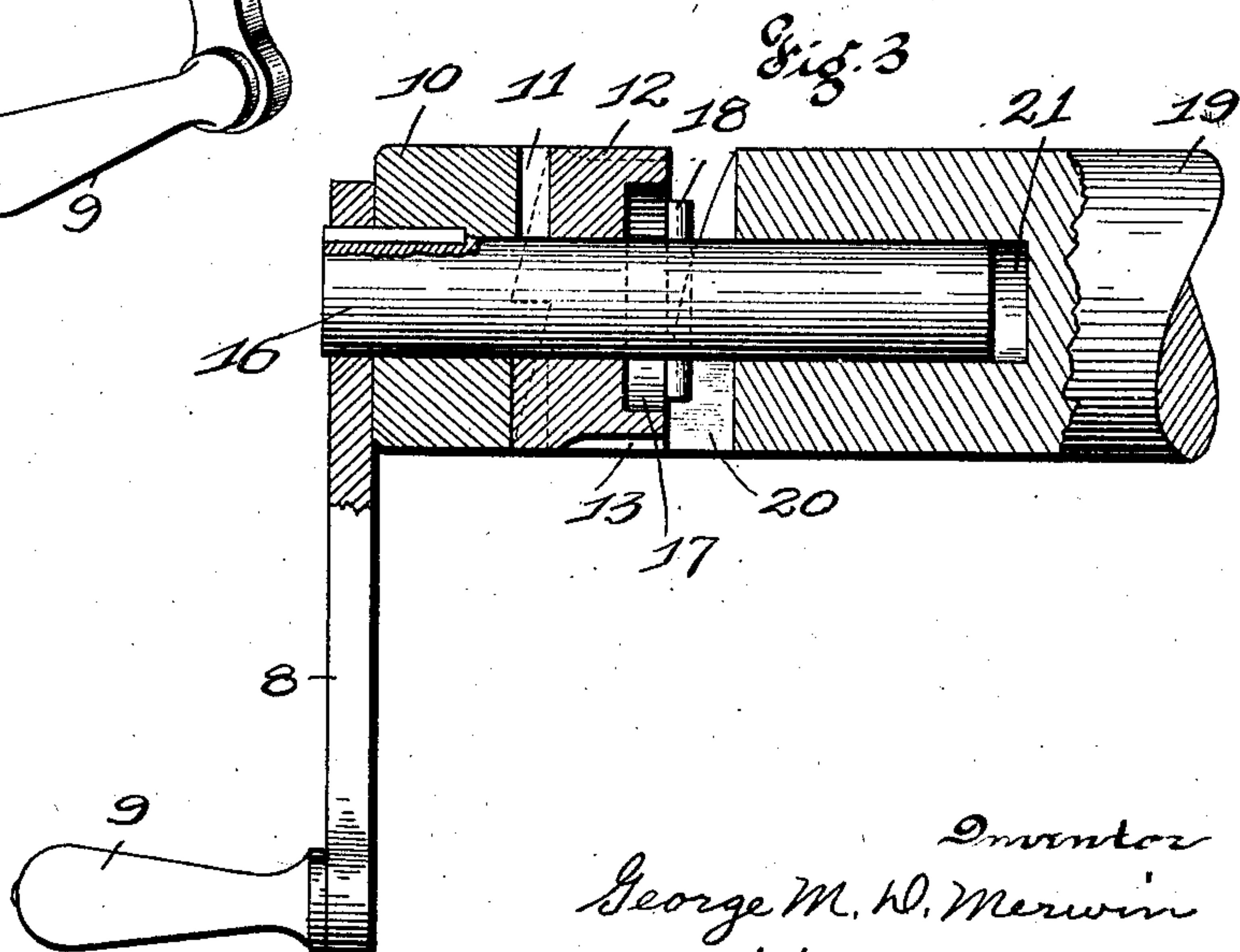
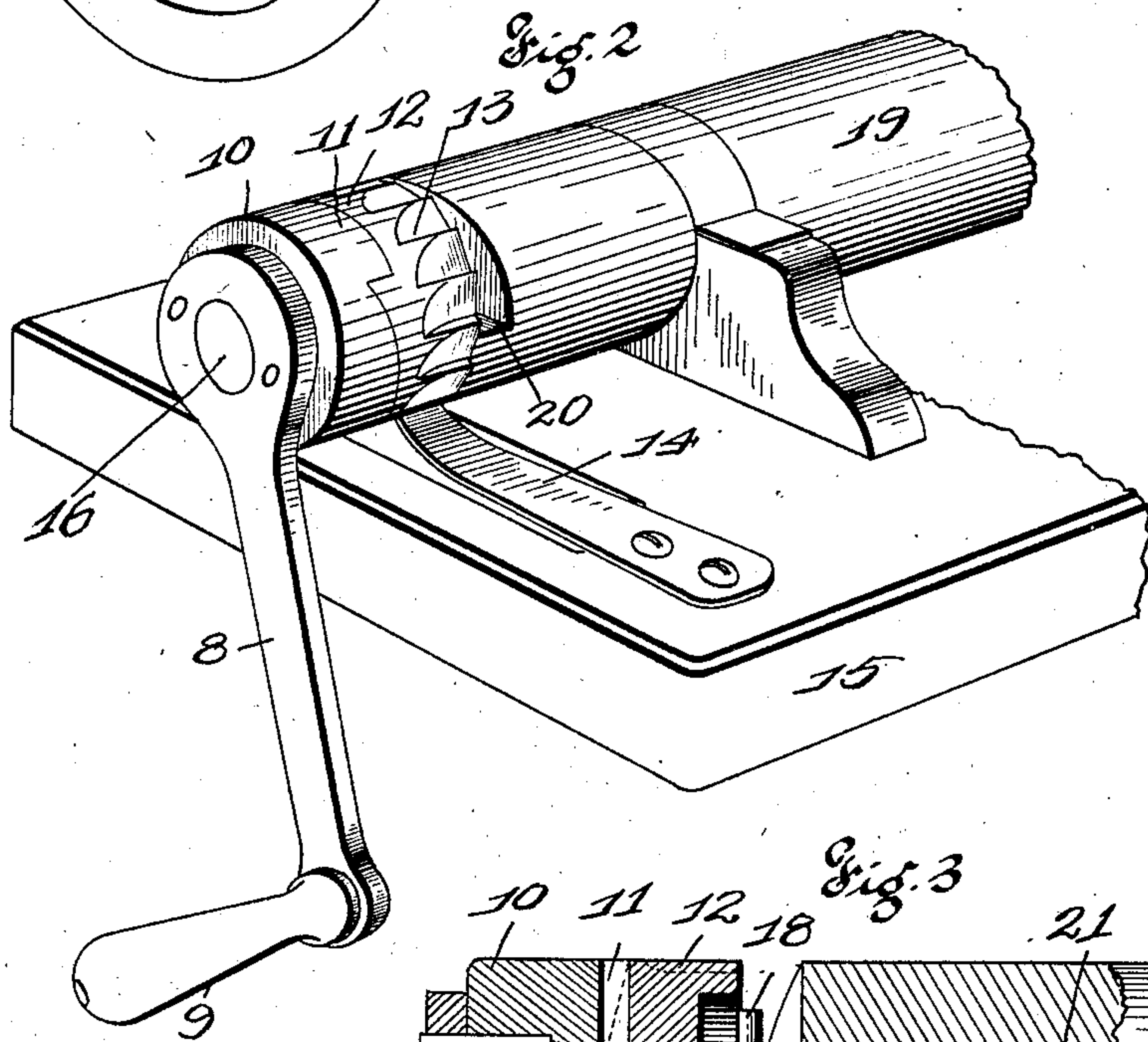
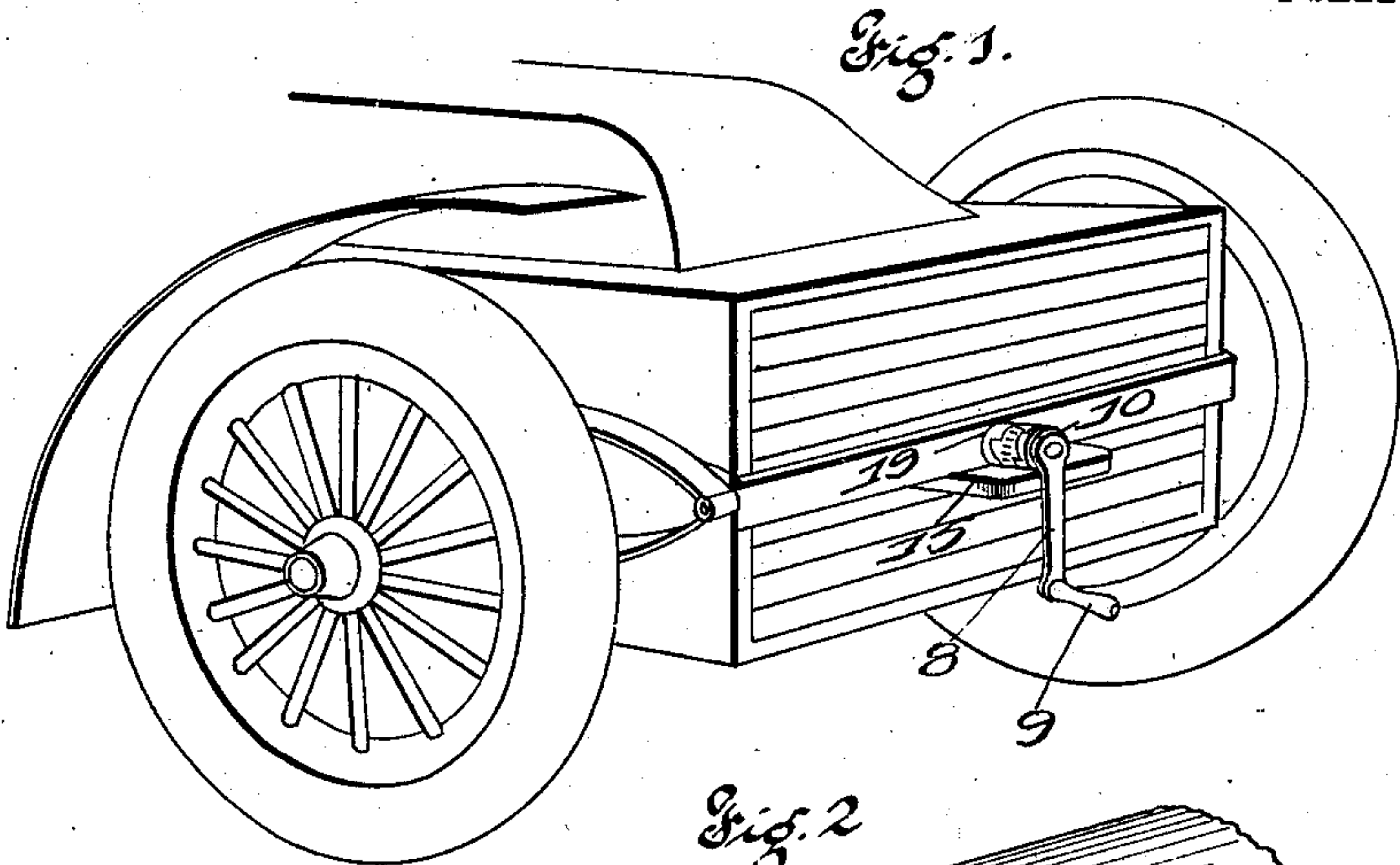
No. 842,793.

PATENTED JAN. 29, 1907.

G. M. D. MERWIN.
STARTING CRANK.

APPLICATION FILED DEC. 5, 1905.

2 SHEETS—SHEET 1.



Witnesses
W. B. Stein.
L. A. L. McIntyre

Inventor
George M. D. Merwin
By Hopkins & Eicks Attys

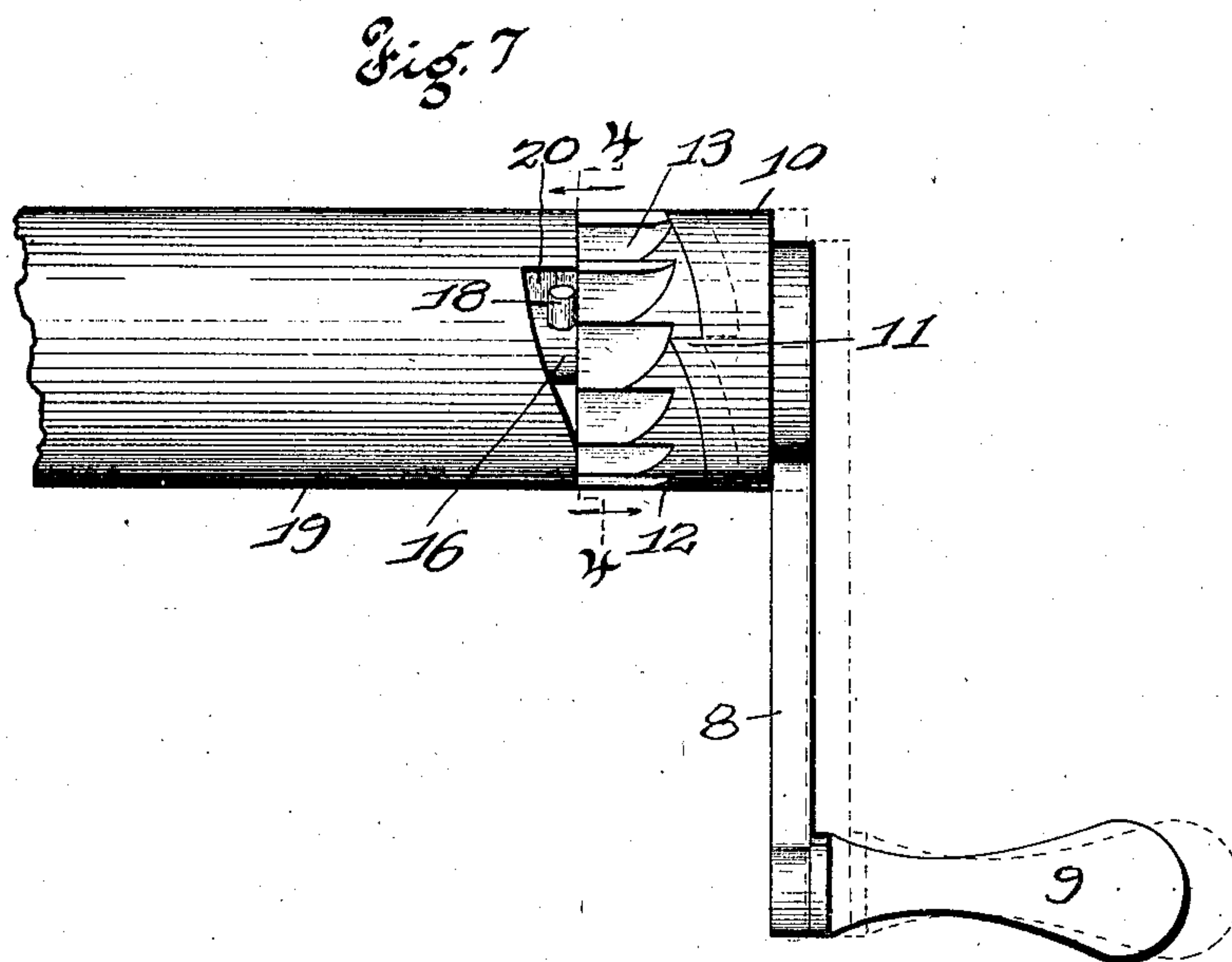
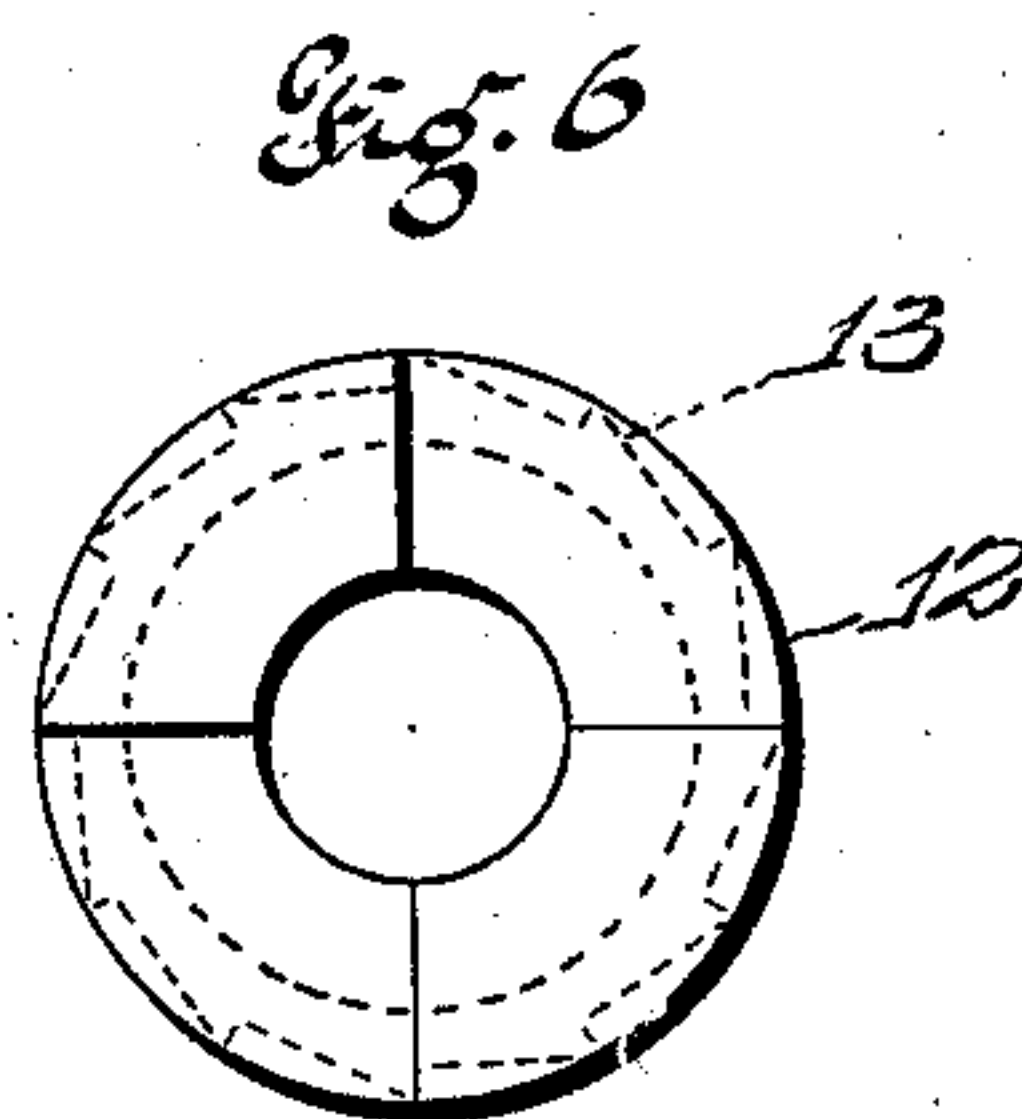
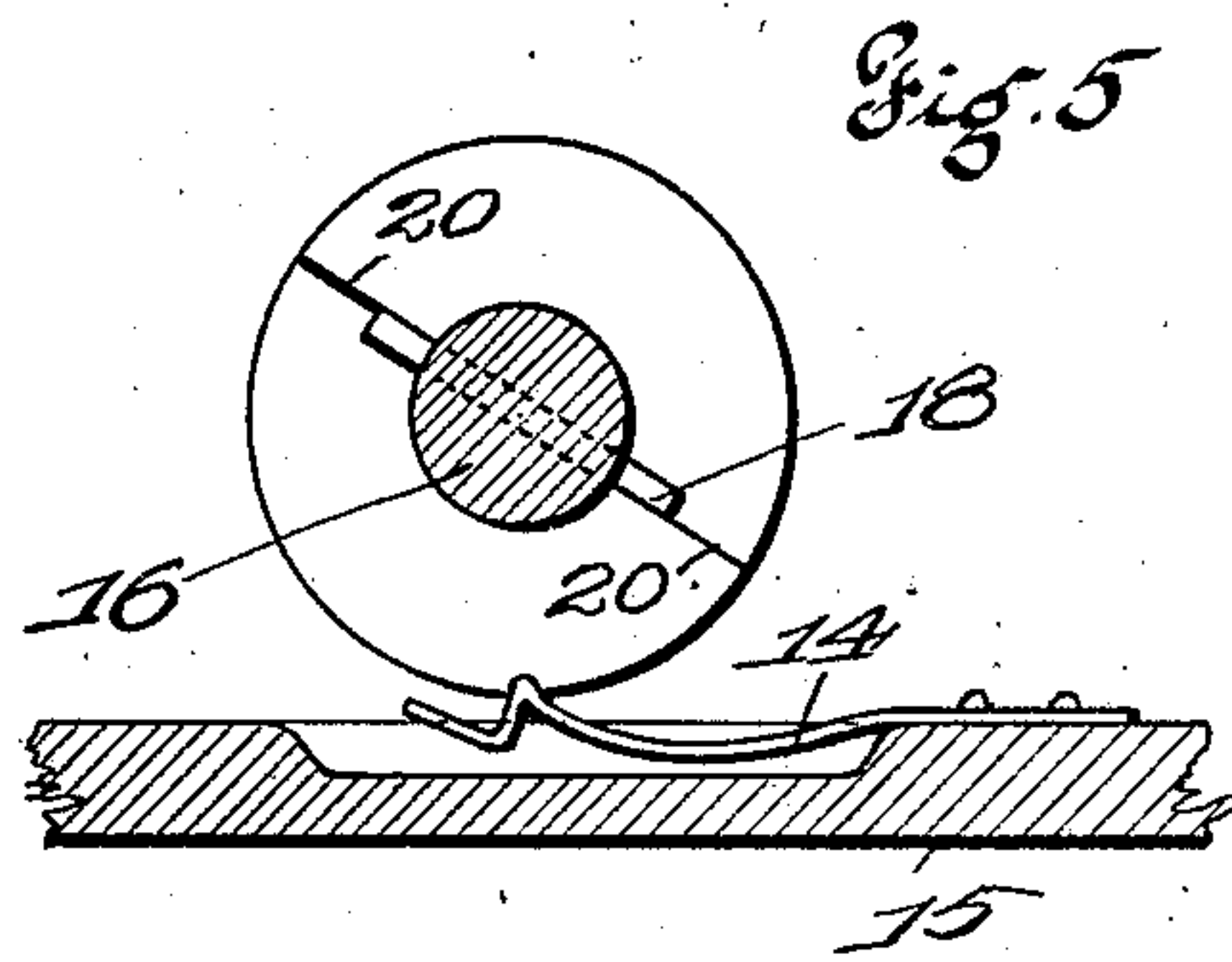
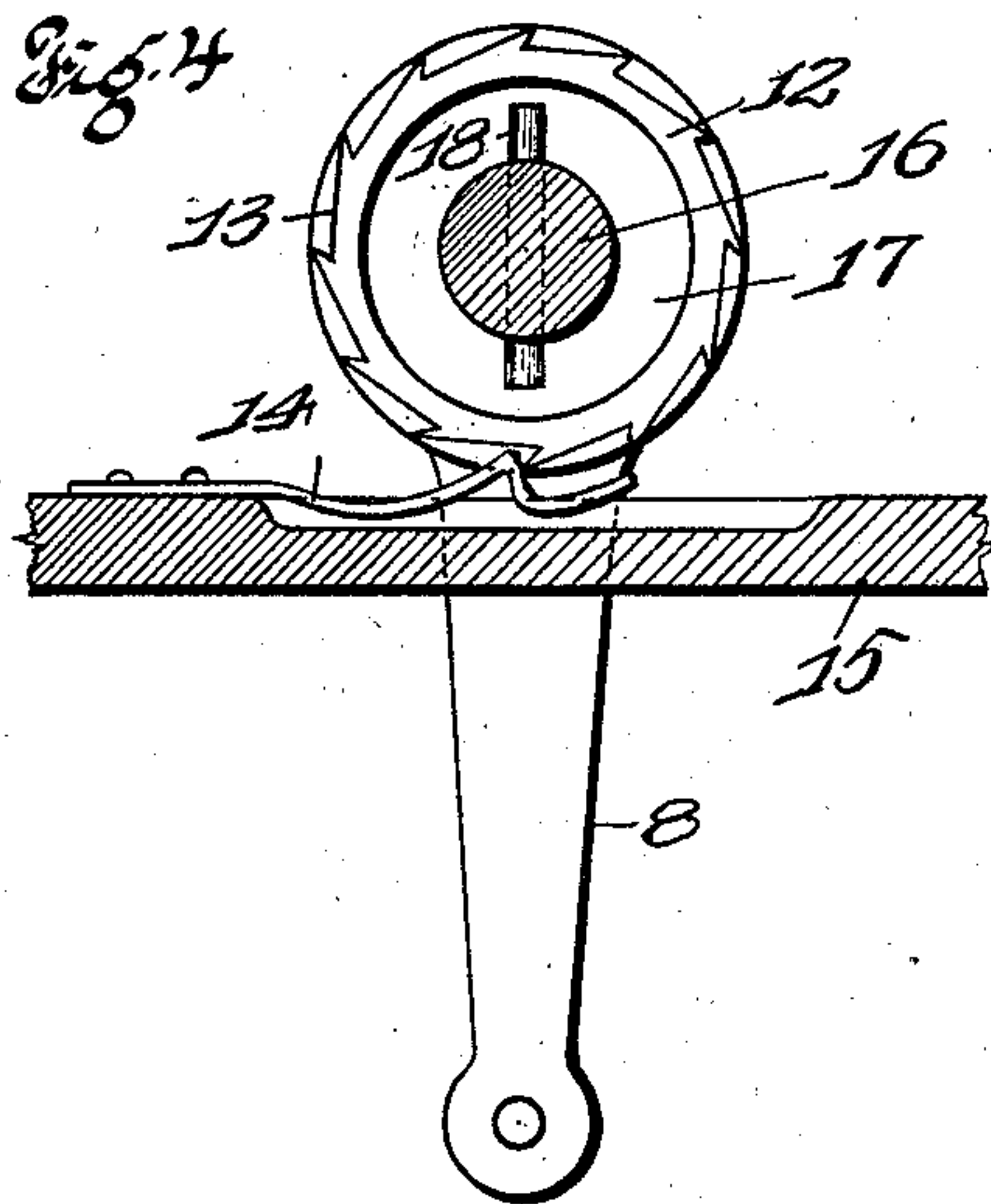
No. 842,793.

PATENTED JAN. 29, 1907.

G. M. D. MERWIN.
STARTING CRANK.

APPLICATION FILED DEC. 5, 1905.

2 SHEETS—SHEET 2.



Witnesses

W. b. Stein.

L.A.L. McIntyre

Inventor

George M. W. Merwin

By Hopkins & Ewins Atty's

UNITED STATES PATENT OFFICE.

GEORGE M. D. MERWIN, OF ST. LOUIS, MISSOURI.

STARTING-CRANK.

No. 842,793.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed December 5, 1905. Serial No. 290,470.

To all whom it may concern:

Be it known that I, GEORGE M. D. MERWIN, a citizen of the United States, and a resident of St. Louis, Missouri, have invented certain new and useful Improvements in Starting-Cranks, of which the following is a specification.

My invention relates to improvements in starting-cranks, and has for its object to provide a crank susceptible of being carried only in one direction.

In the drawings, Figure 1 is a perspective view of the device of my invention applied to an automobile-motor. Fig. 2 is an enlarged perspective view of the device of my invention. Fig. 3 is an enlarged vertical view in mid-section of the same. Fig. 4 is a transverse vertical section of the ratchet and spring-pawl employed in my invention, being taken on the line 4 4 of Fig. 7. Fig. 5 is a transverse vertical view in mid-section, taken on the line 4 4 of Fig. 7. Fig. 6 is a plan view of the inner face of the outer member employed in my invention. Fig. 7 is a side elevation of the device of my invention.

My invention is designed to overcome the accidental backward movement of the starting-crank used in automobile-motors and the like. The backward movement of the starting-axle of such motors is frequently occasioned by premature sparking and the like, and such backward movement, when carrying the starting-crank with it, is a frequent cause of injury to the hand of the operator. To this end I have provided the crank 8, provided with the handle 9, rigidly secured at its inner end to the outer face of the member 10, which is cylindrical in section. The inner face of the member 10 is ratcheted, as indicated in the drawings by the numeral 11, to occlude the corresponding depressions on the outer face of the member 12. The member 12 is of a diameter corresponding to that of the member 10 and is ratcheted upon its periphery, as indicated by the numeral 13, to engage with the spring-pawl 14, which is mounted on the member 15. The pin 16 is cylindrical in form and of a length considerably greater than the thickness of the members 10 and 12. The member 10 is rigidly and concentrically mounted upon the pin 16, and the member 12 is loosely and axially mounted upon the said pin 16. The inner face of the member 12 is recessed, as indicated by the numeral 17, and a cross-pin 18 extends radially through the pin 16 at a

point just beyond the inner face of the member 12. The starting-shaft 19 is ratcheted upon two of its sides, as indicated by the numeral 20, and is provided with a bore 21, into which the inner end of the pin 16 is thrust when the starting-crank is in use. When the inner end of the pin 16 has thus been thrust into place, the occluding ratcheted faces of the members 10 and 12 are in contact, and the cross-pin 18 engaging with the ratchets 20 causes the starting-shaft to be revolved in the desired direction to start the motor. In the event of a backward accidental movement of the starting-shaft the spring-pawl 14 engages with one of the ratchets, (indicated by 13,) causing the member 12 to become stationary. The continued backward revolution of the starting-shaft 19 then throws the cross-pin 18 outwardly into the recess of the inner side of the member 12. There then being no engagement between the pin 16 and the starting-shaft 19, the crank 8 remains stationary and cannot move backward.

It will be observed from the foregoing description that my invention comprises a starting-shaft of a motor apertured to receive a crank-pin, a crank by which the crank-pin is caused to revolve and to drive the starting-shaft in the predetermined direction, the remainder of the mechanism providing means whereby when the starting-shaft itself is caused to rotate backwardly in a direction opposite to the desired and predetermined direction by any accidental circumstances the crank-pin will become disengaged from the aperture in the starting-shaft, so that the crank will not be carried backward by the backward revolution of the starting-shaft.

Having thus described my invention, what I claim as new, and desire to have secured to me by the grant of Letters Patent, is—

1. In a device of the class described, a crank, a pin carried by the crank, an outer member mounted on the pin and having a ratcheted inner face, an inner member loosely mounted on the pin and having a ratcheted outer face, a recessed inner face and a ratcheted periphery, a spring-pawl adapted to engage with said ratcheted periphery, a starting-shaft adapted to receive the inner end of the pin and ratcheted on its outer face, and a cross-pin mounted radially through the former-named pin and adapted to engage with the outer ratcheted face of the starting-

shaft and to be seated in the recess in the inner face of the said inner member, substantially as described.

2. In a device of the class described, a starting-shaft, a crank, a pin actuated by the crank, and means whereby the shaft is engaged with and actuated by the pin when the crank is revolved in the predetermined direction, and means whereby the pin is disengaged from the shaft when the shaft is revolved in the opposite direction, substantially as described.

3. In a device of the class described, a motor, a starting-shaft 19 provided with a bore 21, a crank, a slidable pin carried by said crank and adapted to be inserted in the bore in the starting-crank, a collar fixed to the pin and having a ratcheted inner face, a member 12 loosely mounted upon the pin and ratcheted to engage with the first-named collar member, the member 12 being ratcheted about its periphery, a spring-pawl adapted to engage with the ratcheted face of the member 12, a cross-pin mounted in the first-named pin and adapted to engage with depressions in the outer face of the starting-shaft, the member 12 being provided with a circular recess to receive said cross-pin, substantially as described.

4. In a device of the class described, a starting-shaft having a bore and provided with a ratcheted face, a crank, a pin carried by said crank and arranged in the bore of said shaft, said pin being movable axially of said bore, means carried by said pin for engagement with the ratcheted face of the starting-shaft to effect forward rotation of the latter, and means also carried by said pin for freeing the first-mentioned means from engagement with the shaft when the latter rotates in a reverse direction.

5. In a device of the class described, a starting-shaft having a bore and provided with a ratcheted face, a crank, a pin carried by said crank and arranged in the bore of said shaft, said pin being movable axially of said bore, means carried by said pin for engagement with the ratcheted face of the starting-shaft to effect forward rotation of the latter, a pair of members also carried by said pin intermediate the crank and the means for engaging the ratcheted face of the start-

ing-shaft, one of said members being fixed and the other movable, the opposing faces of said members having engaging surfaces designed to effect axial movement of said pin upon reverse rotation of the starting-shaft, and means for locking said loose member against reverse rotation.

6. In a device of the class described, a starting-shaft having a bore and provided with a ratcheted face, a crank, a pin carried by said crank and arranged in the bore of said shaft, said pin being movable axially of said bore, a cross-pin carried by the first-mentioned pin for engagement with the ratcheted face of the starting-shaft to effect forward rotation of the latter, a pair of members also carried by said first-mentioned pin and arranged intermediate the crank and the cross-pin, one of said members being fixed and the other movable, the opposing faces of said members having engaging surfaces designed to effect axial movement of said pin upon reverse rotation of the starting-shaft, and means for locking said loose member against reverse rotation.

7. A device of the class described, comprising a crank, a pin carried thereby, means carried by said pin for engaging the starting-shaft of a motor to effect forward rotation of said shaft, and means also carried by said pin for freeing the first-mentioned means from engagement with the starting-shaft when the latter rotates in a reverse direction.

8. A device of the class described, comprising a crank, a pin carried thereby, a cross-pin carried by the first-mentioned pin for engaging the starting-shaft of a motor to effect forward rotation of said shaft, a collar mounted on said first-mentioned pin and movable axially thereof, and a second collar also mounted on said pin but fixed against movement thereon, the opposing faces of said collars having engaging surfaces designed to effect axial movement of said pin upon reverse rotation of the starting-shaft.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

GEORGE M. D. MERWIN.

Witnesses:

ALFRED A. EICKS,
WALTER C. STEIN.