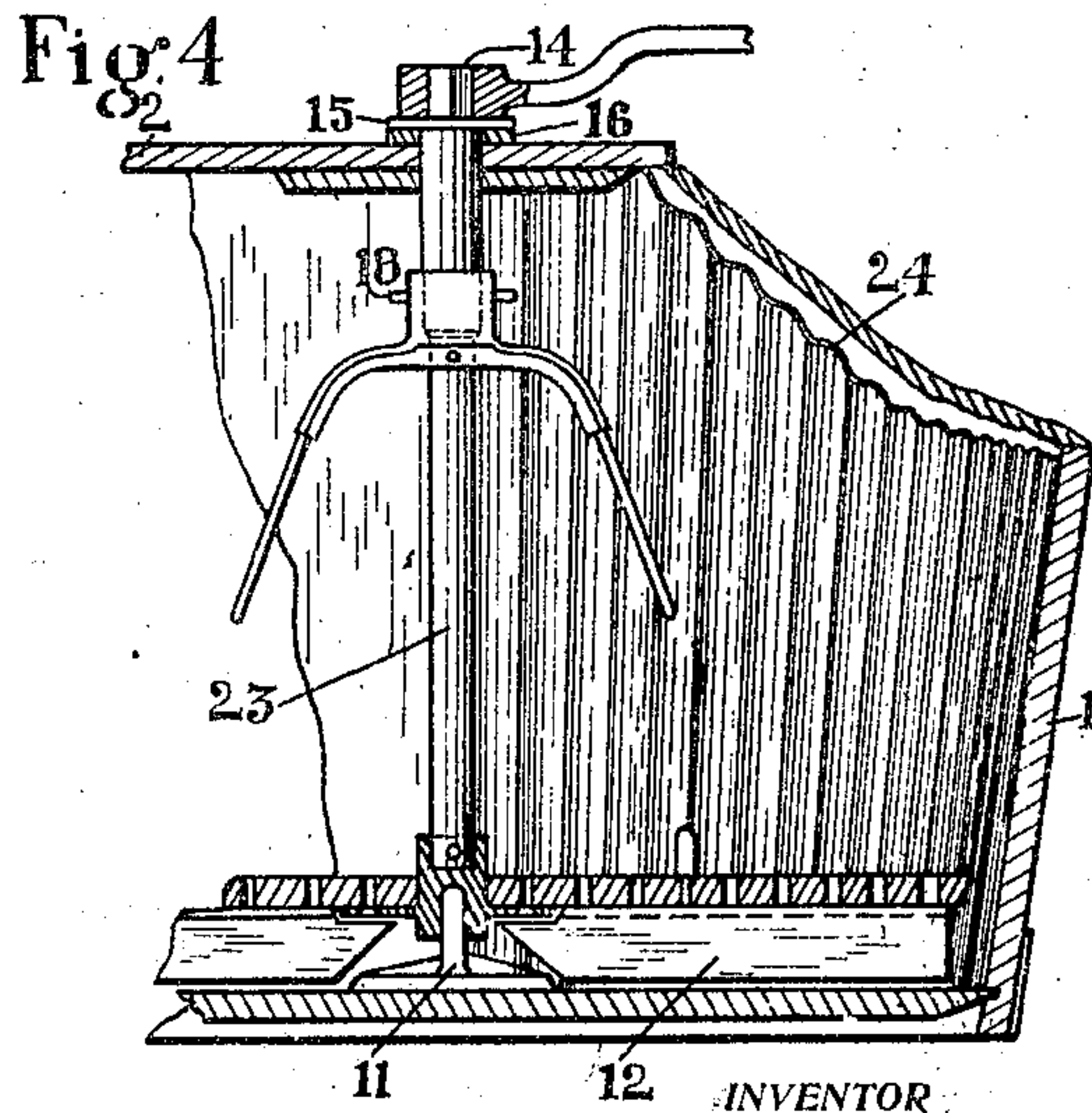
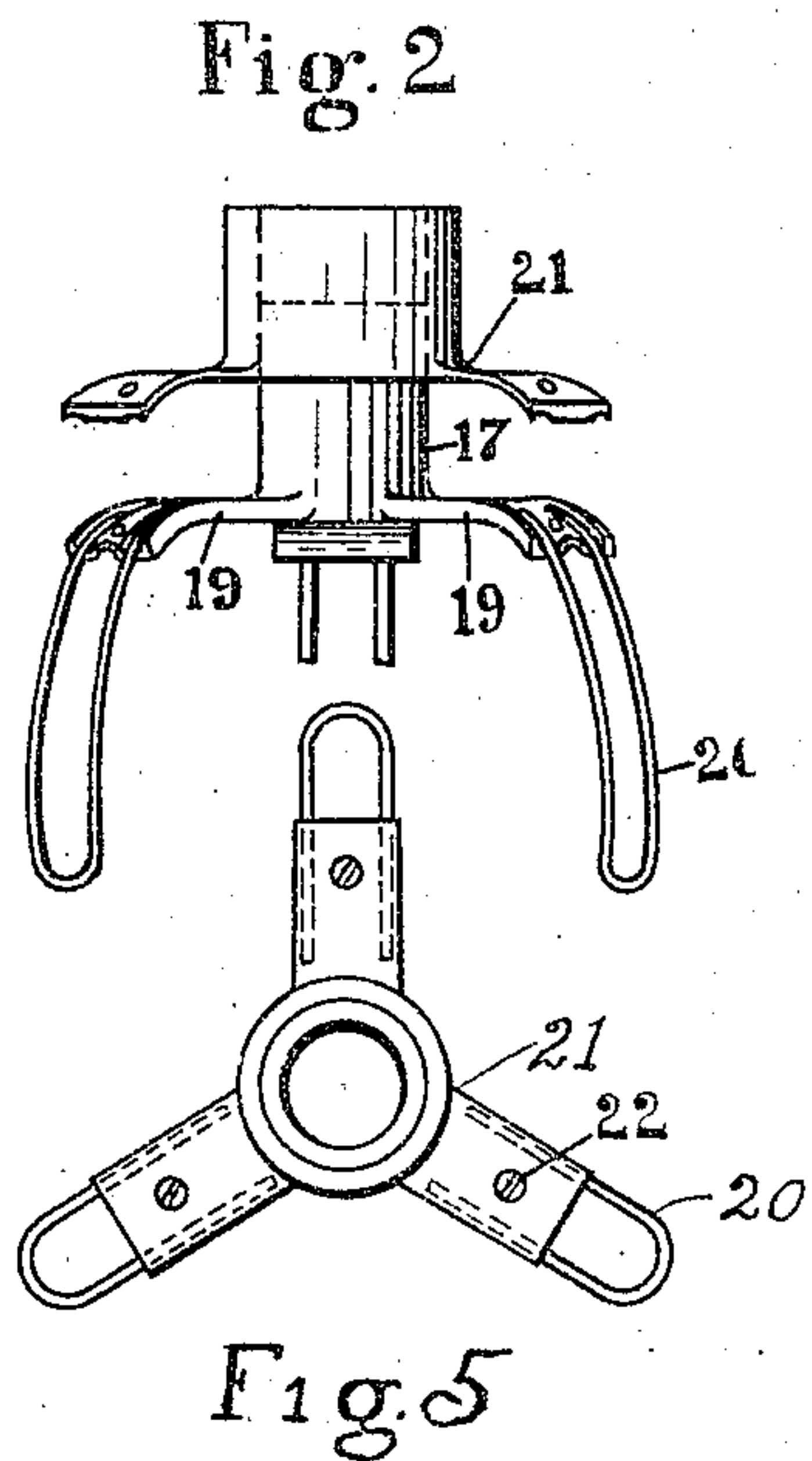
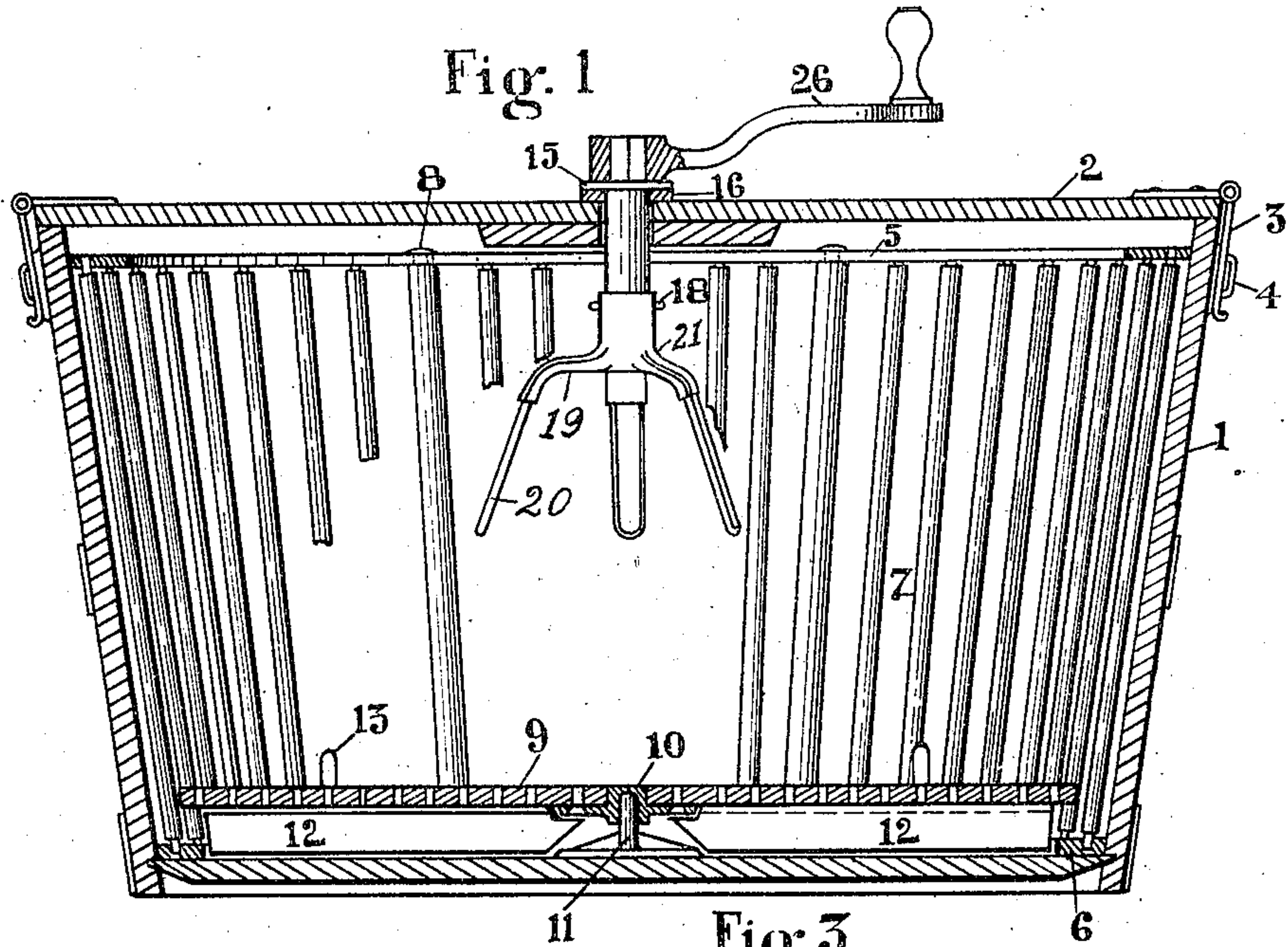


A. W. SHANK.
 WASHING MACHINE.
 APPLICATION FILED SEPT. 2, 1909.

944,285.

Patented Dec. 28, 1909.



WITNESSES:
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 BY *[Signature]*
 ATTORNEYS.

UNITED STATES PATENT OFFICE.

AUGUSTUS W. SHANK, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO EARLE R. KNIFFEN, OF DETROIT, MICHIGAN.

WASHING-MACHINE.

944,285.

Specification of Letters Patent.

Patented Dec. 28, 1909.

Application filed September 2, 1909. Serial No. 515,843.

To all whom it may concern:

Be it known that I, AUGUSTUS W. SHANK, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to washing machines and more especially to certain features thereof insuring great efficiency, together with simplicity and durability of construction.

15 The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view in vertical section of a washing machine embodying features of the invention. Fig. 2 is a view in detail of a spider. Fig. 3 is a bottom plan view of a suction plate. Fig. 4 is a view of a modified form of driving means. Fig. 5 is a plan view in detail of the spider.

Referring to the drawings, an outer casing or vessel 1 preferably of the proportion of an ordinary washtub, has a removable cover 2, detachably fastened by suitable means, as hinge straps 3 engaging staples 4. The casing is lined by a cage consisting of an upper ring 5, a lower ring 6, and rollers 7 journaled in spaced relation in suitable bearing apertures in the rings, three or more of the rolls being fastened by screws 8 or the like to act as stay rods in holding the parts together and thus permitting the bodily removal of the cage which the rings and rollers form.

40 A suction plate 9 or circular apertured disk, has a central bearing boss 10 adapted to be stepped on a stud 11 centrally secured on the casing bottom, of sufficient length to hold the plate at an interval above the bottom. Blades or radially disposed ribs 12 on the underside of the plate 9 just clear the bottom of the casing when the plate is in place. Pins 13 or like means for engaging clothes project from the upper face of the plate.

A short shaft 14 with collar 15 is removably journaled in a washer 16 and aperture in the cover 2 in alinement with the stud 11.

Its upper end is squared, splined or otherwise adapted for non-rotatably engaging a suitable crank 26. Its lower end is adapted to be inserted in the socket of the hub 17 of a spider and held there by a transverse pin 18 or the like. Radial arms 19 on the spider have stirrers 20 extending therefrom downwardly to engage clothes placed on the plate. Preferably the stirrers are down bent wire loops whose ends are clamped in grooves of the spider arms by a top plate 21 secured by screws 22 or the like.

In operation, clothes are placed on the suction plate and covered with water. The cover is then clamped down with the stirrers extending into the bundle of clothes. By turning the crank around or swinging it back and forth, the clothes are likewise revolved and carry with them the plate. The paddles on the underside of this throw the water out and up between the rollers which keep the clothes away from the wall and give free passage to the water. This action draws or sucks the water above the plate down through the plate apertures and through the clothes. At the same time the clothes are given a twisting wringing motion as the handle is turned first one way and then the other, the plate being momentarily retarded. In practice, it is found that the dirt from the clothes does not remain in suspension but is in great measure trapped by the plate and kept in the bottom of the machine below the clothes. The plate may be rigidly connected to the crank by a coupling shaft 23, as shown in Fig. 4. Likewise the rollers or cage may be replaced by vertical flutes or corrugations 24 in the tub sides indicated in said Fig. 4.

Obviously, changes in the details of construction may be made without departing from the spirit of the invention, and I do not care to limit myself to any particular form or arrangement of parts.

What I claim as my invention is:—

A washing machine comprising an outer casing, a cover therefor, a rotatable perforated suction plate removably journaled on the casing at an interval above the casing bottom, provided with substantially radial blades on its lower side and projections on its upper side, a cage concentric in the casing around the plate consisting of an

upper ring, a lower ring and rollers in spaced relation journaled at each end in the rings, a crank shaft rotatably secured on the cover in axial alinement with the suction plate, a crank detachably secured on the upper end, and stirring members on the lower end extending toward the plate, a spider with radial arms, detachably secured

on the lower end of the shaft and wire loop stirrers secured on the spider arms. 10

In testimony whereof I affix my signature in presence of two witnesses.

AUGUSTUS W. SHANK.

Witnesses:

C. R. STICKNEY,

A. M. SHANNON.