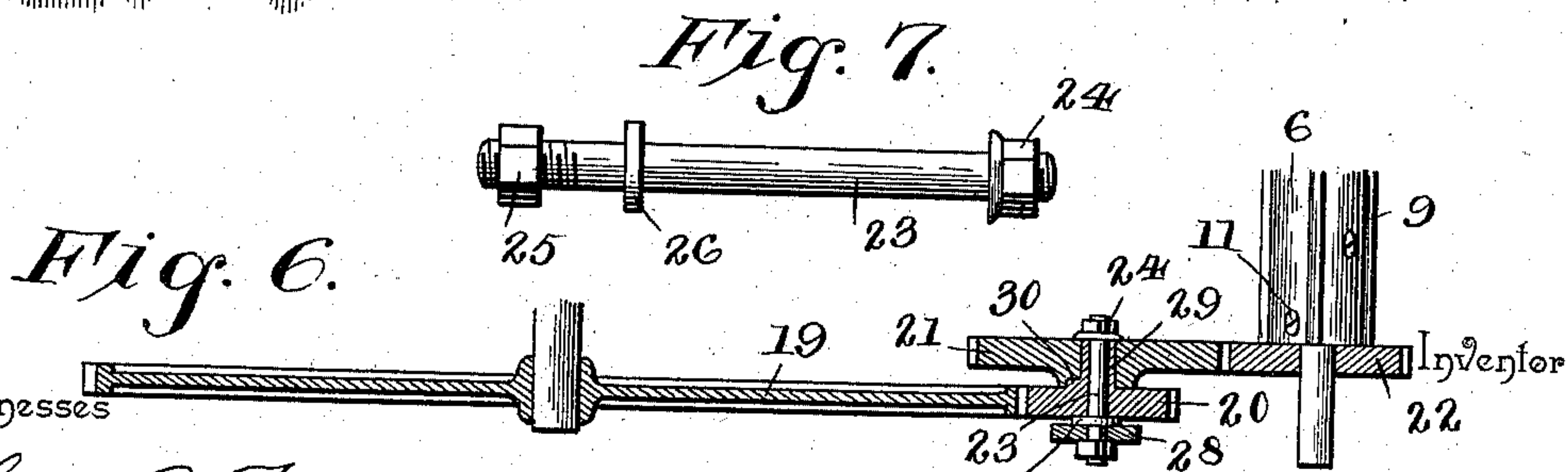
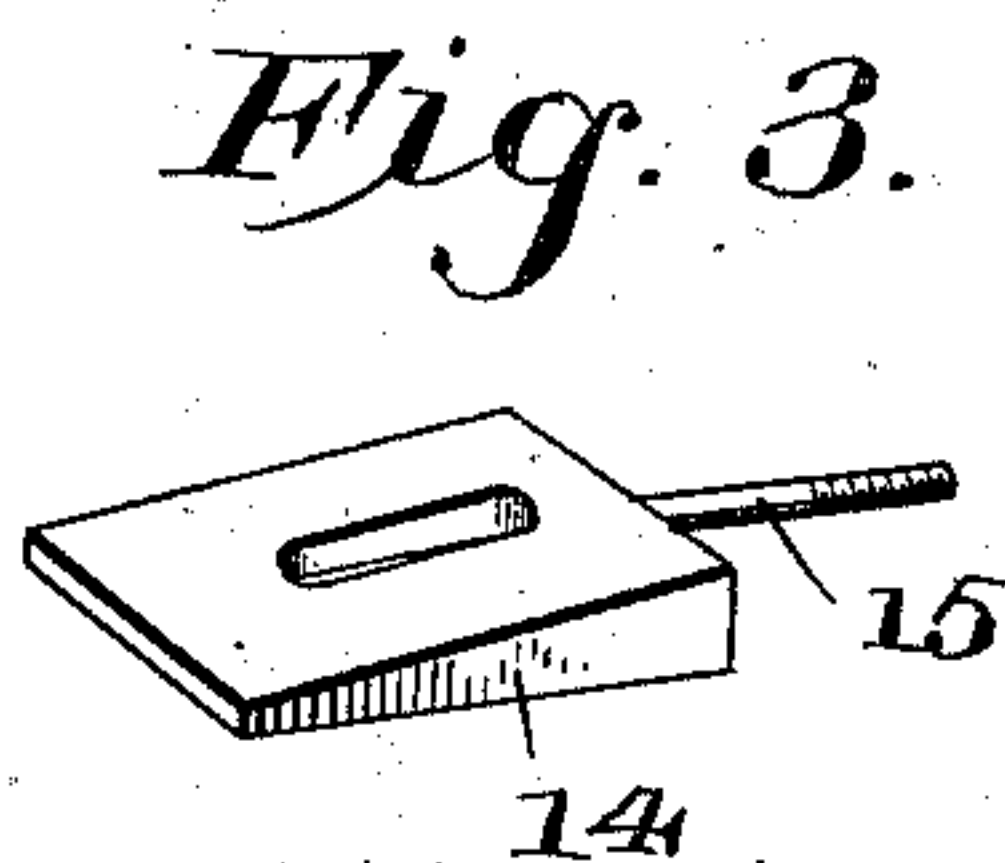
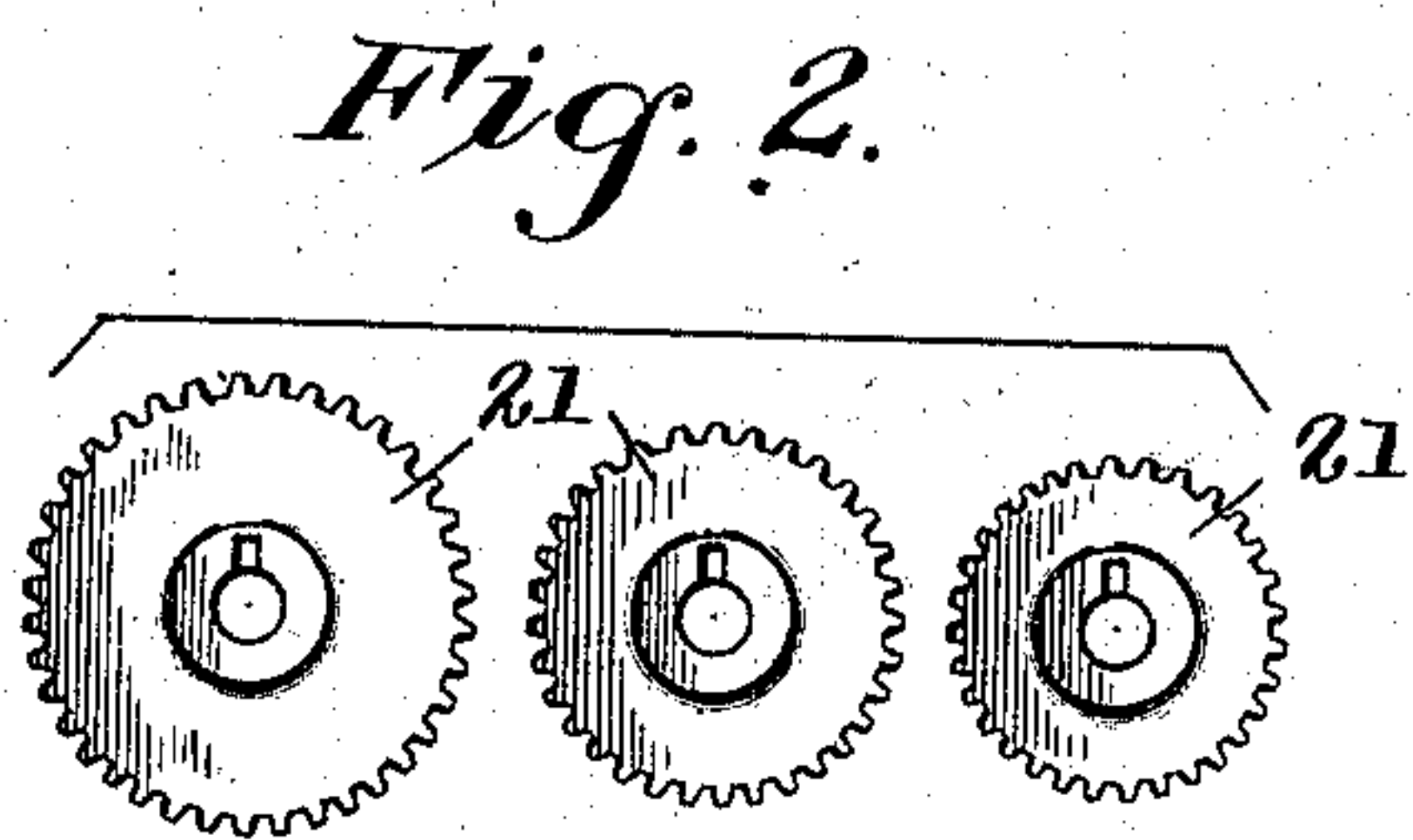
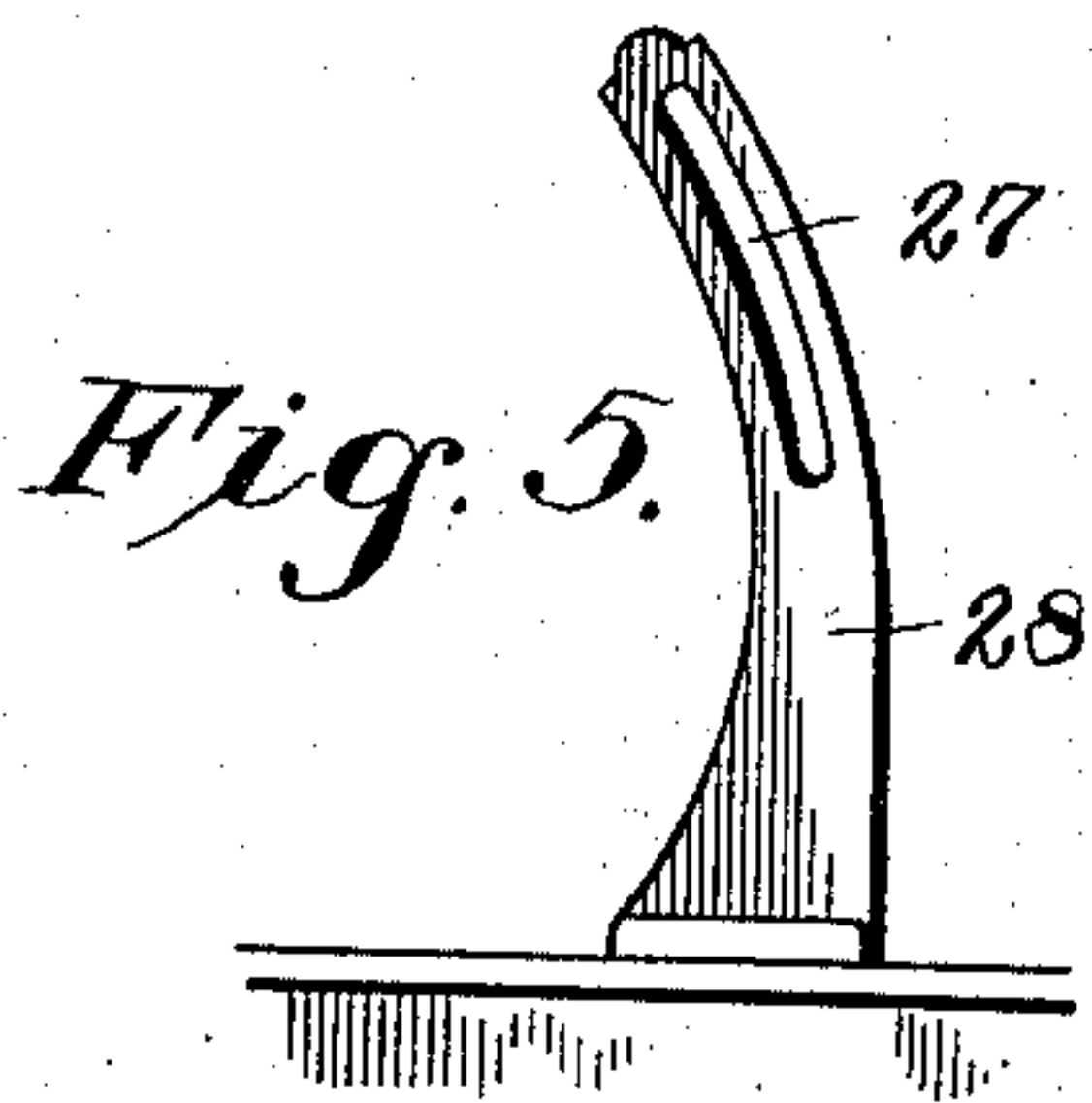
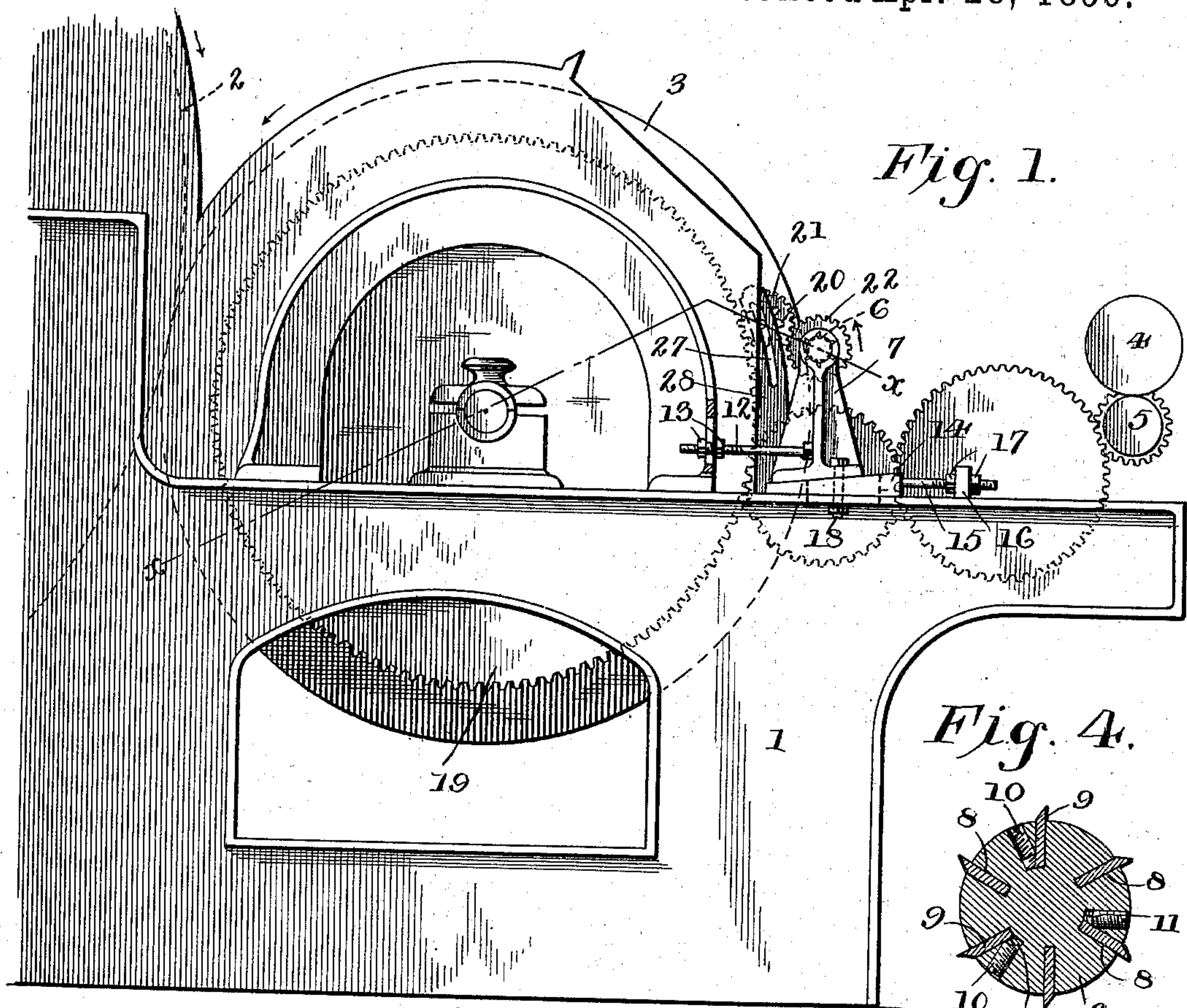


(No Model.)

R. W. HILTON.
DOFFER COMB FOR CARDING ENGINES.

No. 559,285.

Patented Apr. 28, 1896.



Chas. A. Ford.
V. B. Hillyard.

By his Attorneys,

Robert W. Hilton,

Chas. Snow & Co.

UNITED STATES PATENT OFFICE.

ROBERT W. HILTON, OF PAWTUCKET, RHODE ISLAND.

DOFFER-COMB FOR CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 559,285, dated April 28, 1896.

Application filed October 26, 1895. Serial No. 566,978. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. HILTON, a subject of the King of Sweden and Norway, residing at Pawtucket, in the county of Providence and State of Rhode Island, have invented a new and useful Doffer-Comb for Carding-Engines, of which the following is a specification.

This invention relates to doffer-combs for carding-engines; and it has for its object to provide a comb of this character that has a revolving motion in contradistinction to the oscillating motion of ordinary doffer-combs, whereby less speed and power of the engine are required to effect an equal amount of work compared with the ordinary doffer-comb and whereby better results are attained, because a parallelizing influence is exerted upon the fibers, thereby obviating the disorder occasioned by the use of the oscillating comb. By diminishing the speed the bearings are not apt to become heated and the parts are not subjected to such great wear and strain. Hence the life of the engine is prolonged.

Other objects and advantages are contemplated and will become manifest as the nature of the invention is unfolded; and to this end the improvement consists of the novel features and the details of construction, which hereinafter will be more fully described and claimed and which are shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of a carding-engine, showing the application of the invention. Fig. 2 is a detail view showing different sizes of interchangeable speed-gears. Fig. 3 is a detail view showing the wedge for adjusting the bearing-pillows of the doffer-comb. Fig. 4 is a transverse section of the revolving doffer-comb on a larger scale. Fig. 5 is a detail view of the bearing-bracket for the interchangeable speed-gears. Fig. 6 is a detail section on the line X X of Fig. 1. Fig. 7 is a detail view of the spindle-bolt upon which the interchangeable gears are mounted.

The same numerals of reference indicate corresponding and like parts in all the figures of the drawings, and in the latter 1 denotes the framework, 2 the carding-cylinder, 3 the doffer, and 4 and 5 the drawing or calender

rolls, all related and operating in the usual manner.

The doffer-comb 6 is cylindrical and is journaled in bearing-pillows 7 and is provided with a series of longitudinally-disposed kerfs 8, in which are fitted the teeth or combs 9, the latter being held in their seats in any convenient manner, preferably by means of binding-screws 10, which are fitted into threaded openings 11, contiguous to and intersecting with the inner ends of the respective kerfs 8. These binding-screws have their outer ends about flush with or slightly below the surface of the doffer-comb, so as not to interfere with the successful operation thereof. It will be understood that there will be as many binding-screws for each comb as may be found necessary to secure the same firmly within its seat or kerf, and these binding-screws will be manipulated in any convenient manner, so as to secure or release the combs, as required. The combs may extend on radial lines or at any relative angle to the center of the cylindrical comb-body so long as they obtain a firm purchase within the kerfs or seats, and a substantial structure is the result.

The bearing-pillows 7 are adjustable upon the frame 1 longitudinally and vertically, the longitudinal adjustment being secured by means of rods 12, which have their free ends threaded and passed through a portion of the frame and upon which are mounted adjusting-nuts 13, one being disposed upon each side of that portion of the frame through which the threaded end of a rod passes. Obviously, by loosening one of the nuts 13 and tightening the other, the bearing-pillow can be moved longitudinally upon the frame or bed of the engine. The vertical adjustment of each bearing-pillow is secured by means of a wedge 14, which latter is interposed between the bed or frame and the lower side of the respective bearing-pillow, and by a proper adjustment of the wedges the bearing-pillows can be raised or lowered, as will be readily understood.

The wedges 14 can be adjusted by any suitable means, and, as shown, a rod 15 extends from the base thereof and passes through a lug 16 of the frame and is provided with adjusting-nuts 17, upon opposite sides of the lug

16, for a purpose similar to the adjusting-nuts 13. The pillow-bearing 7 and the corresponding wedge are held in the adjusted position by means of a vertically-disposed bolt 18 passing through these parts and a portion of the frame 1. The wedge 14, as also that portion of the frame through which the bolt 18 passes, are slotted to admit of the movements of the bolt 18 when adjusting the bearing-pillow upon the frame to and from the doffer. The portion of the frame through which the rod 12 passes is slotted to admit of the vertical movements of the said rod 12 when adjusting the pillow-bearing 7 vertically.

One end of the doffer will be provided with a gear-wheel or toothed rim 19, which serves to transmit motion to the revolving doffer-comb 6 by means of an intermediate speed-gearing, the latter consisting of a pinion 20, which is in mesh with the teeth of the gear-wheel or rim 19, and an interchangeable gear-wheel 21, which meshes with a gear-wheel 22, on the end of the revolving doffer-comb. The gearing described provides for the doffer and the revolving doffer-comb rotating in the same direction, as indicated by the arrows, and the relative speed of the doffer-comb can be varied by replacing the gear-wheel 21 by another of different size.

The pinion 20 is mounted to revolve loosely upon a spindle-bolt 23, which is provided at one end with a flanged nut 24 and at its opposite end with a nut 25, and which has a collar or shoulder 26 formed thereon a short distance from the nut 25. This spindle-bolt is adjustably mounted in a curved slot 27, formed in the upper end of a bracket 28, which is secured to the frame 1 of the machine. The slot 27 is formed on the arc of a circle whose center corresponds with the axial line of rotation of the doffer, so that at any adjustment of the spindle-bolt the pinion 20 will be in mesh with the toothed rim or gear-wheel 19.

That portion of the spindle-bolt located between the shoulder 26 and nut 25 will lie in the slot 27, and the bracket 28 will be clamped between the said shoulder 26 and the nut 25 in the usual manner. By loosening the nut 25 the spindle-bolt can be raised or lowered to make provision for the proper adjustment of the required gear-wheel 21, and also to properly adjust the gears to agree with any adjustment of the doffer-comb that the character of the work may demand. A tubular portion 29 extends from one side of the pinion 20 and forms a bearing for the gear-wheel 21, and a projection 30 thereof enters a corresponding depression in the opposing side of the gear-wheel 21, so as to cause the gear-wheel and pinion to revolve together.

From the construction herein described it

will be observed that the revolving doffer-comb occupies about the same position with respect to the doffer as the ordinary oscillating comb now in use; but the improved revolving comb rotates in the same direction as the doffer, whereby the points or teeth of the revolving comb will evenly take the fibers from the doffer and deliver the same to the drawing or calender rolls, and the operation of the revolving comb insures better carding by reason of the fact that the said comb will have a parallelizing influence on the fibers and will not leave the same in the disorder that the ordinary oscillating comb necessarily causes in its operation.

The operation of the engine does not differ materially from engines of the class to which the present invention belongs, and for this reason a detailed description is not deemed necessary; but it may be well to state that in adapting the revolving doffer-comb to engines of different makes and patterns various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. In a carding-engine, the combination with the doffer; of upright bearing-pillows, means for adjusting the bearing-pillows vertically and in a direction toward and away from the doffer, a revolving doffer-comb journaled for rotation in the bearing-pillows, an interchangeable speed-gear having a gear connection with the doffer-comb and the doffer, and an adjustable bearing-support for said speed-gear, substantially as set forth.

2. In a carding-engine, the combination with the doffer; of bearing-pillows, means for adjusting said pillows vertically and in a direction toward and away from the doffer, a revolving doffer-comb journaled in said pillows, a fixed bracket located adjacent to one of said pillows and provided with a curved slot, a spindle-bolt adjustably fitted at one end in said curved slot, a pinion loosely mounted on said spindle-bolt and having a gear connection with the doffer, and an interchangeable gear having a detachable clutch connection with said pinion at one side thereof and also having a gear connection with said revolving doffer, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ROBERT W. HILTON.

Witnesses:

A. L. BJÖRKMAN,
THOS. S. PUKERUD.