

(No Model.)

J. WOLKE.
MACHINE BRAKE.

No. 414,469.

Patented Nov. 5, 1889.

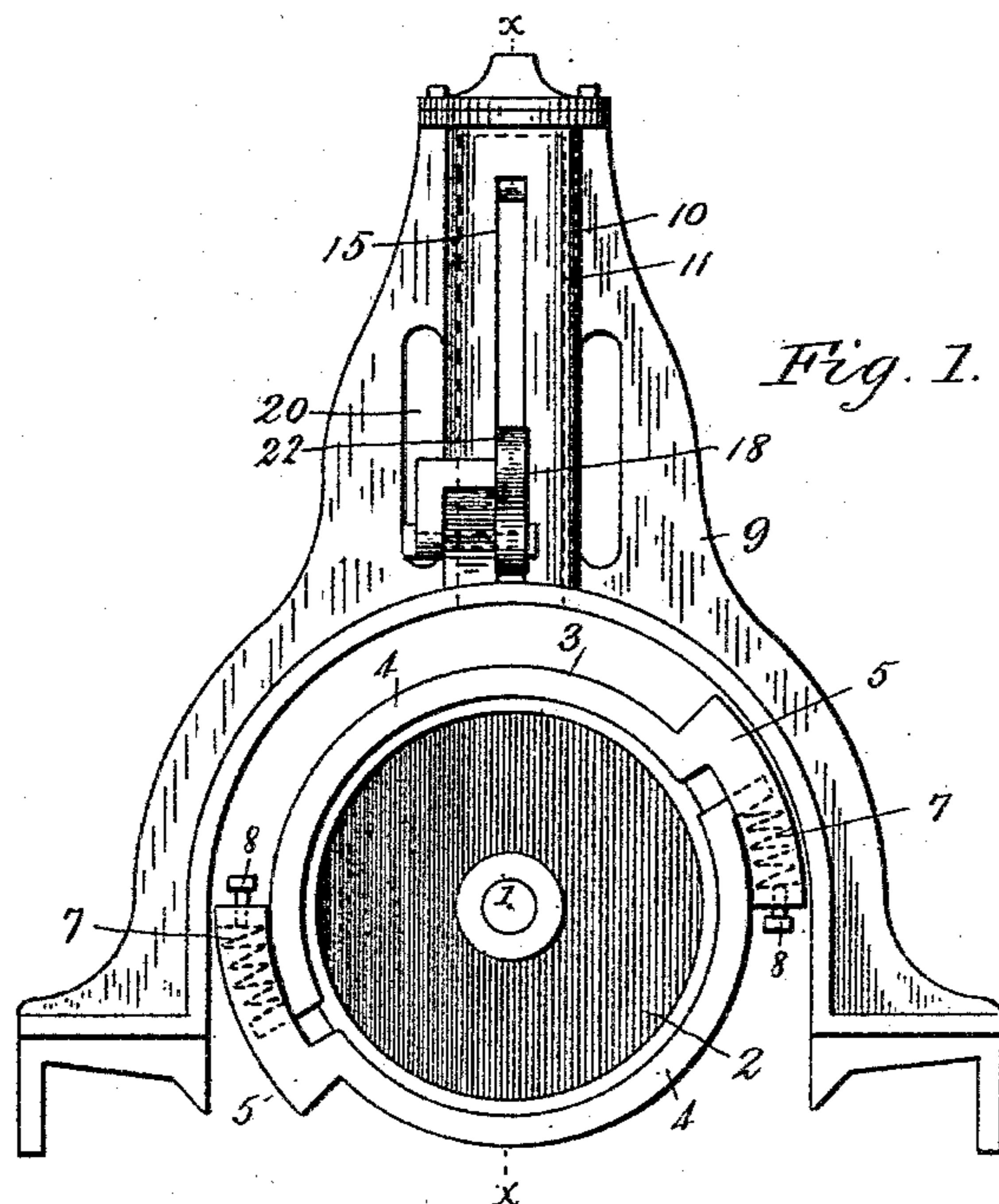


Fig. 1.

Fig. 2.

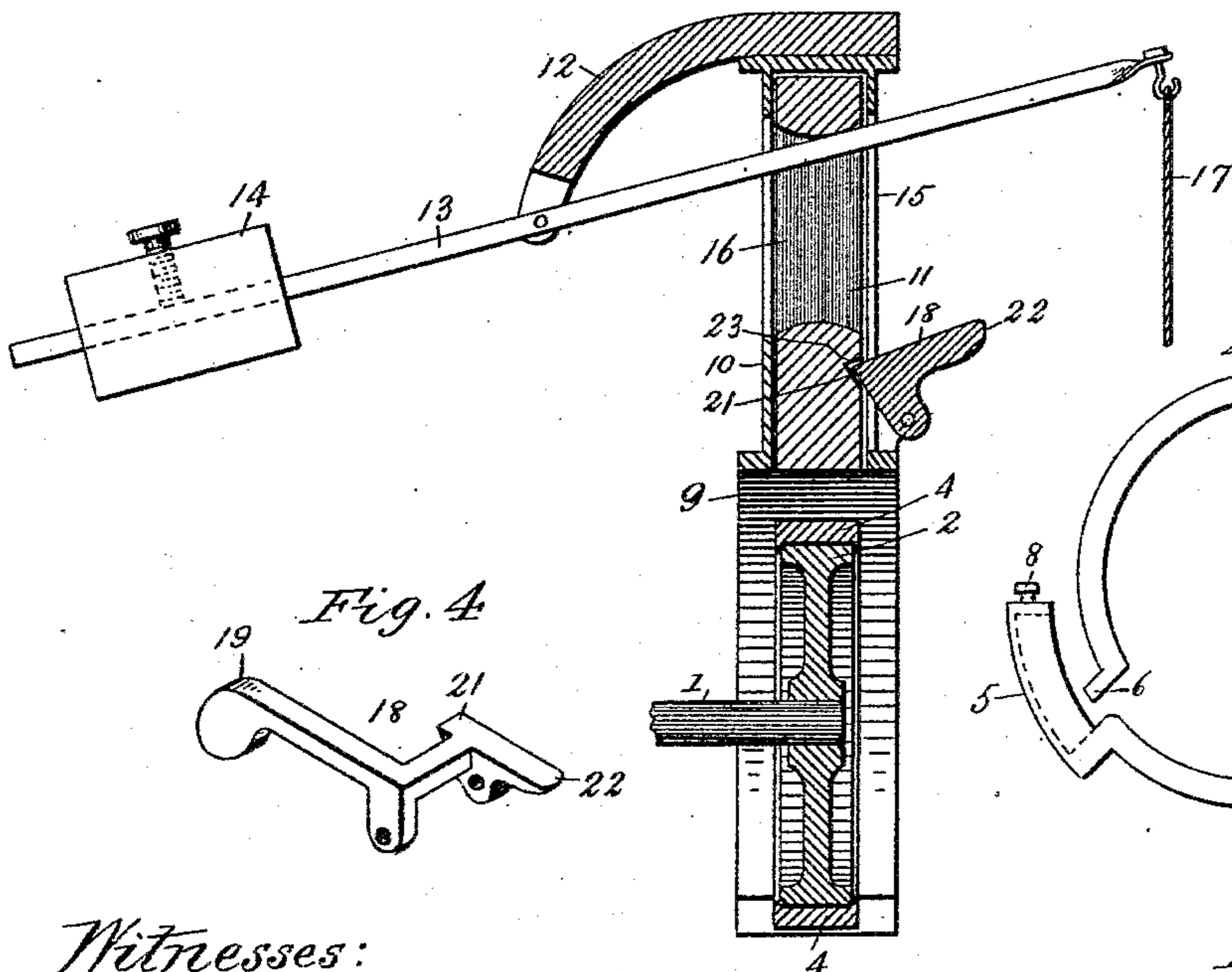


Fig. 3.

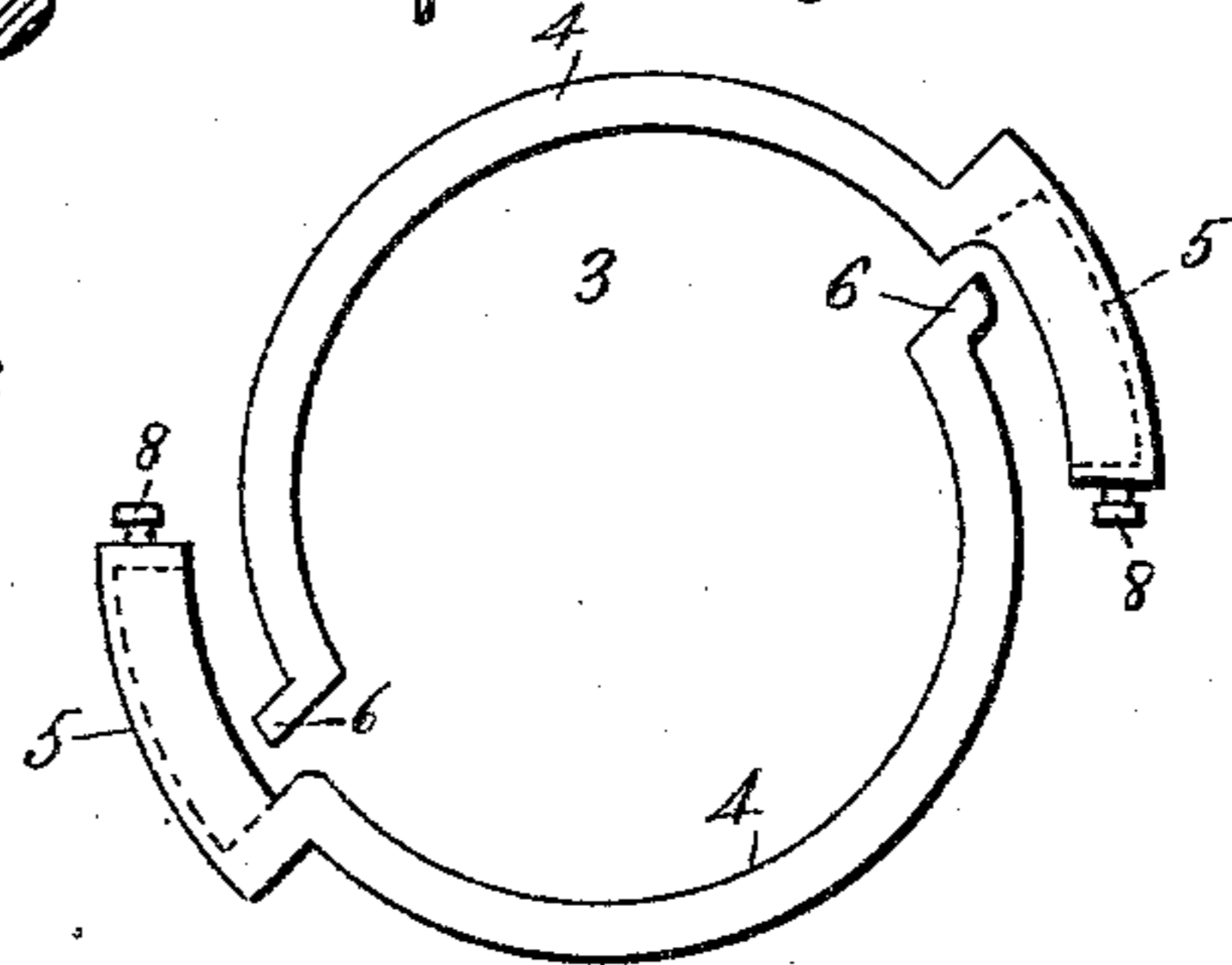
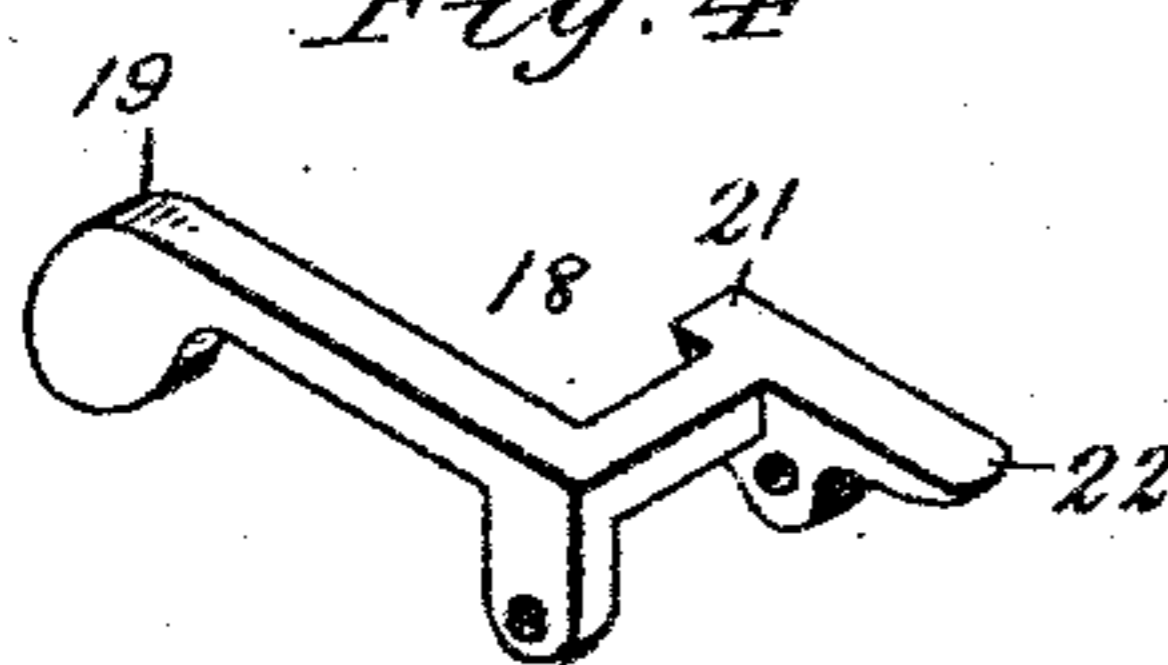


Fig. 4.



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UNITED STATES PATENT OFFICE.

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MACHINE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 414,469, dated November 5, 1889.

Original application filed May 19, 1888, Serial No. 274,375. Divided and this application filed May 27, 1889. Serial No. 312,294.
(No model.)

To all whom it may concern:

Be it known that I, JOHN WOLKE, a citizen of the United States, residing at Jacksonville, in the county of Morgan and State of Illinois, have invented certain new and useful Improvements in Machine-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates, generally, to machine-brakes, and particularly to a two-part annular clamp-brake for applying frictional resistance to shafts, disks, pulleys, wheels, and other revoluble surfaces.

The machine in which I prefer to employ my present invention is the windmill which forms the subject-matter of another application for Letters Patent filed by me May 19, 1888, Serial No. 274,375, of which application this one is a division.

My said present invention consists in the improved construction and arrangement or combination of parts hereinafter fully disclosed in the description, drawings, and claims.

The objects of my invention are, first, to provide novel and improved mechanism for promptly and yet gradually applying frictional resistance to the peripheries of shafts, disks, pulleys, wheels, and other revoluble surfaces; second, to provide a two-part spring-actuated clamp-brake, which revolves with a shaft, disk, pulley, or wheel, with improved devices for stopping the same; third, to provide improved means for gradually increasing the frictional resistance of said clamp-brake upon the surface to which it is applied, and, fourth, to provide improved means for raising and lowering the dog or stop-bolt for releasing and applying said clamp-brake. These objects are attained by the mechanism illustrated in the accompanying drawings, forming part of this specification, in which the same reference-numerals indicate the same parts, and in which—

Figure 1 represents a rear face view of my improved brake mechanism; Fig. 2, a vertical section of the same on the line $x x$ of Fig. 1; Fig. 3, a detail view of the two-part clamp-

brake, and Fig. 4 a detail perspective view of the trigger or trip.

In the drawings, the numeral 1 indicates a revoluble shaft, upon which, for instance, a pulley or disk 2 is secured. A clamp-brake 3, which is composed of two semicircular bands 4, provided at their respective ends with outwardly-projecting longitudinally-slotted casings 5 and lugs 6, the latter being adapted to fit and slide within said slotted casings, is placed around said disk 2. Coiled springs 7 are located within these slotted casings between said lugs and the set-screws 8. The latter pass through the ends of said casings, press against said springs and yieldingly hold the clamp-brake around the rim of the disk 2. The clamping force of this brake may be adjusted by the set-screws 8, which serve to regulate the tension or pressure of the springs 7.

An upright casting or frame 9 serves to cover and protect the clamp-brake 3 and the disk 2, and is formed with a vertically-bored upright bearing 10, in which a dog or stop-bolt 11 is adapted to be moved. An arm 12 projects forward from the upper end of said casting or frame, and in the lower end of said arm is fulcrumed a lever 13, the forward arm of which is provided with an adjustable weight 14, and its rear arm projects through and is adapted to be moved up and down within vertically-aligned slots 15 and 16, formed, respectively, in the upright bearing 10 and in the dog or stop-bolt 11. A cord or wire 17 is attached to the rear end of said lever.

A trigger or trip 18, which is provided with a forwardly-projecting weighted arm 19, which passes through a slot 20 in the upright casting or frame 9, with a beveled catch or lip 21, and with a rearwardly-projecting arm 22, is pivoted upon the rear side of the upright casting or frame and engages by its catch or lip 21 with a beveled notch 23 in the vertically-movable dog or stop-bolt 11 when the latter is in its raised position in said upright bearing. On reference to the drawings it will be observed that the weight upon the lever 13 will hold the same normally tilted forward, that the rear arm of said lever will

raise the vertically-movable dog or stop-bolt 11, and that the latter will be held in its raised position by the catch or lip 21. When the rear arm of said lever is drawn or pulled
 5 down by the cord or wire 17, it will strike the rear arm 22 of the trigger or trip 18, tilt the same, and release the dog or stop-bolt 11, which will then drop down with its end against the periphery of the clamp-brake 3.
 10 As this clamp-brake normally revolves with the disk 2, which is rigidly secured to the shaft 1, said brake will be stopped when the end of one of its projecting casings 5 strikes the lower end of said bolt and stop the revolution of said disk. As the coiled springs 7
 15 yieldingly hold the semicircular bands 4 of the clamp-brake upon the disk, the latter is permitted to slip or slide slightly within said clamp-brake after the revolution of one of
 20 said bands has been arrested by the descent of the dog or stop-bolt 11, and thus said disk and its shaft will not be suddenly arrested or stopped with an injurious jar or effect. This is due to the fact that the combined length
 25 of the semicircular bands, apart from the slotted casings, is somewhat less than the circumference of the disk, and that the length of the slots in the casings containing the springs is sufficient to allow the latter to be
 30 compressed by the lugs 6 to an extent that will cause said bands to clamp upon the disk and gradually retard and finally stop the same; also, during this operation, as said disk continues to revolve for a short distance
 35 after the drop of the dog or stop-bolt, it will draw around with it the other semicircular band which is not in contact with said dog or stop-bolt; also, owing to the compression of its spring, it will be caused to bind gradu-
 40 ally tighter upon said disk. Thus this short revolution or movement of said disk within the clamp-brake gradually increases the frictional resistance of the latter and causes its successful operation.

45 Having thus fully described the construction and arrangement or combination of the several parts of my improved brake mechanism, what I claim as new is—

1. In a machine-brake, the combination,
 50 with a revoluble surface, of an annular two-part clamp-brake provided with springs for yieldingly holding it against said surface and means for engaging and arresting said clamp-brake, substantially as described.

55 2. In a machine-brake, the combination, with a revoluble surface, of an annular two-part clamp-brake provided with springs for yieldingly holding it against said surface, and a dog or stop-bolt for engaging and arresting
 60 said clamp-brake, substantially as described.

3. In a machine-brake, the combination, with a revoluble surface, of an annular clamp-brake composed of two semicircular bands which are fitted around the periphery of said
 65 surface and provided with a spring in one end

of each, and a dog or stop-bolt for engaging and arresting said clamp-brake, substantially as described.

4. In a machine-brake, the combination, with a revoluble disk, of an annular clamp-brake composed of two semicircular bands which are fitted around the periphery of said disk and provided with a spring and an adjusting-screw in one end of each, and a dog or stop-bolt for engaging and arresting said
 75 clamp-brake, substantially as described.

5. In a machine-brake, the combination, with a revoluble disk, of an annular clamp-brake composed of two semicircular bands which are of less length combined than the
 80 circumference of said disk, and which are provided with adjustable springs for yieldingly holding them against said disk, and a dog or stop-bolt for engaging and arresting said clamp-brake, substantially as described. 85

6. In a machine-brake, the combination, with a revoluble disk, of an annular clamp-brake composed of two semicircular bands which are of less length combined than the
 90 circumference of said disk, and which are provided with adjustable springs for yieldingly holding them against said disk, a dog or stop-bolt for engaging and arresting said clamp-brake, and means for bringing said stop-bolt into contact with and removing it from said
 95 clamp-brake, substantially as described.

7. In a machine-brake, a revoluble disk, a clamp-brake formed in two parts and surrounding said disk and provided with projecting slotted casings and lips and with springs
 100 within said casings, in combination with a vertically-movable dog or stop-bolt, substantially as described.

8. In a machine-brake, a revoluble disk, a clamp-brake formed in two parts and surrounding said disk and provided with projecting slotted casings and lips and with springs
 105 within said casings, in combination with a vertically-movable dog or stop-bolt, a weighted lever for operating the same, and a trigger or trip for holding and releasing it, substantially as described. 110

9. In a machine-brake, a revoluble disk, a clamp-brake formed in two parts and surrounding said disk and provided with projecting slotted casings and lips and with springs
 115 within said casings, in combination with a vertically-movable dog or stop-bolt formed with a vertical slot and a beveled notch, a weighted lever passing through said slot, and a trigger or trip provided with a catch or lip and with forwardly and rearwardly extending arms, substantially as described. 120

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

JOHN WOLKE.

Witnesses:

JOHN N. MARSH,
 DAN. E. PIERSON.