

No. 677,464.

Patented July 2, 1901.

G. W. NISTLE.
BRAKE.

(Application filed Feb. 6, 1901.)

(No Model.)

FIG. 1.

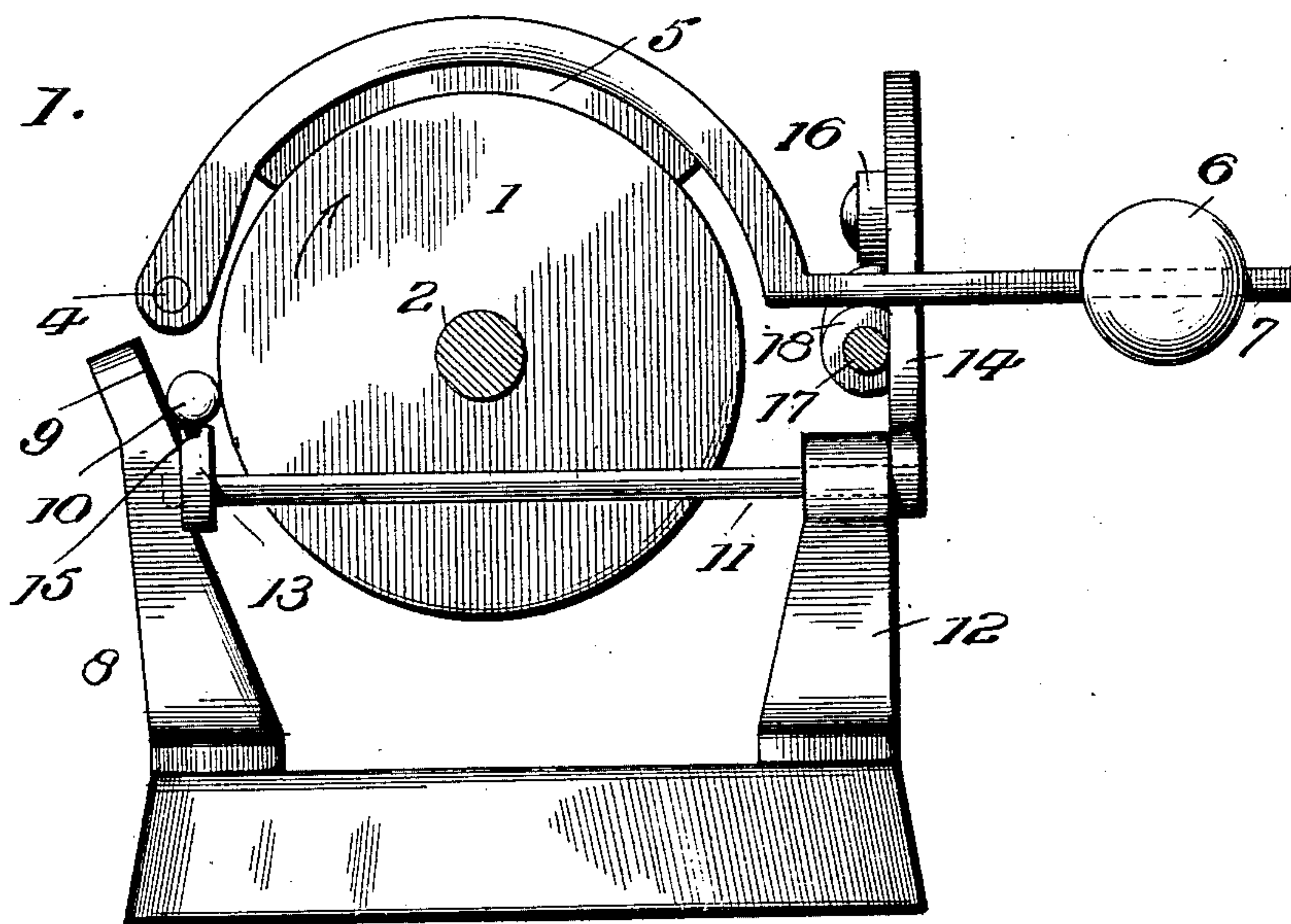


FIG. 2.

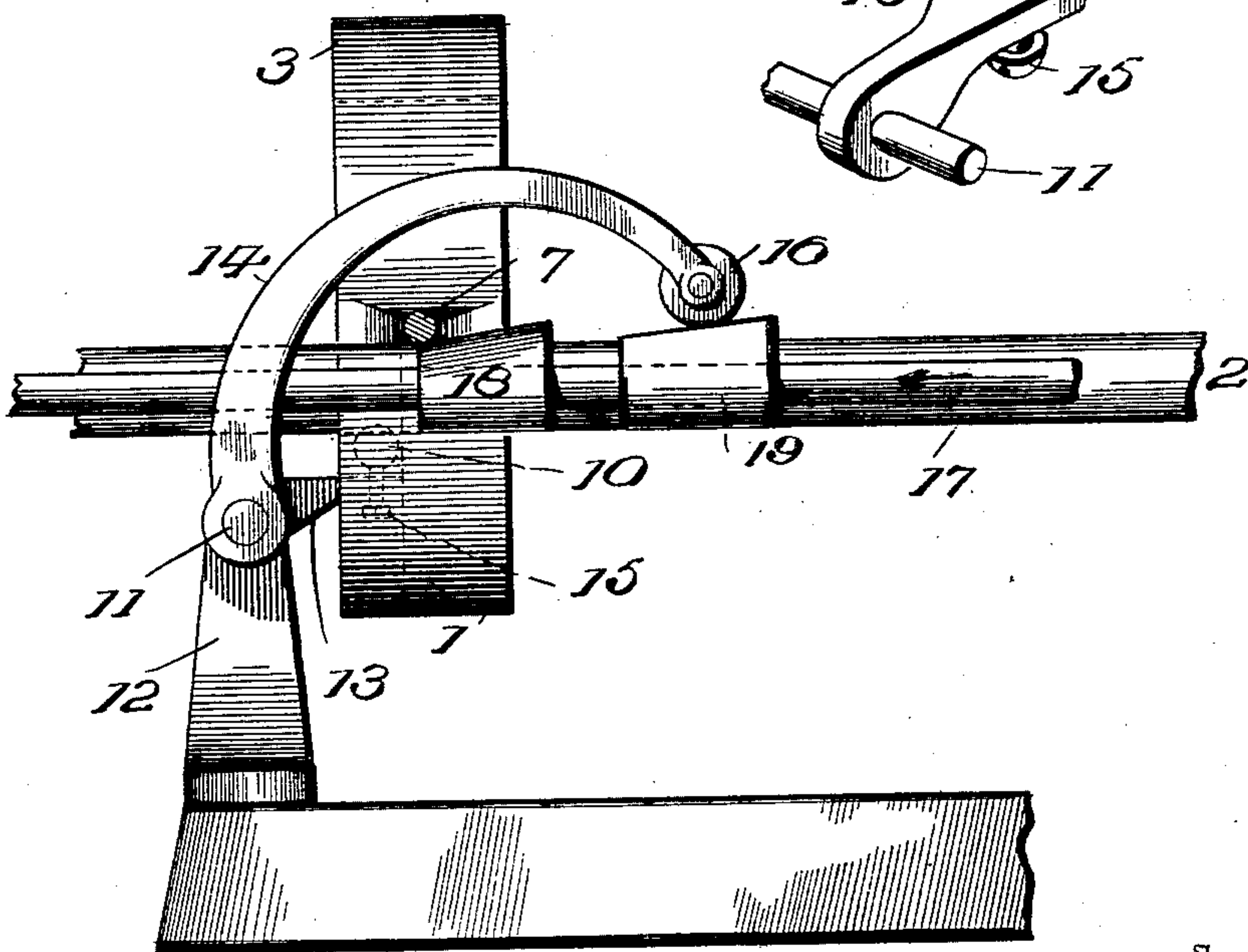
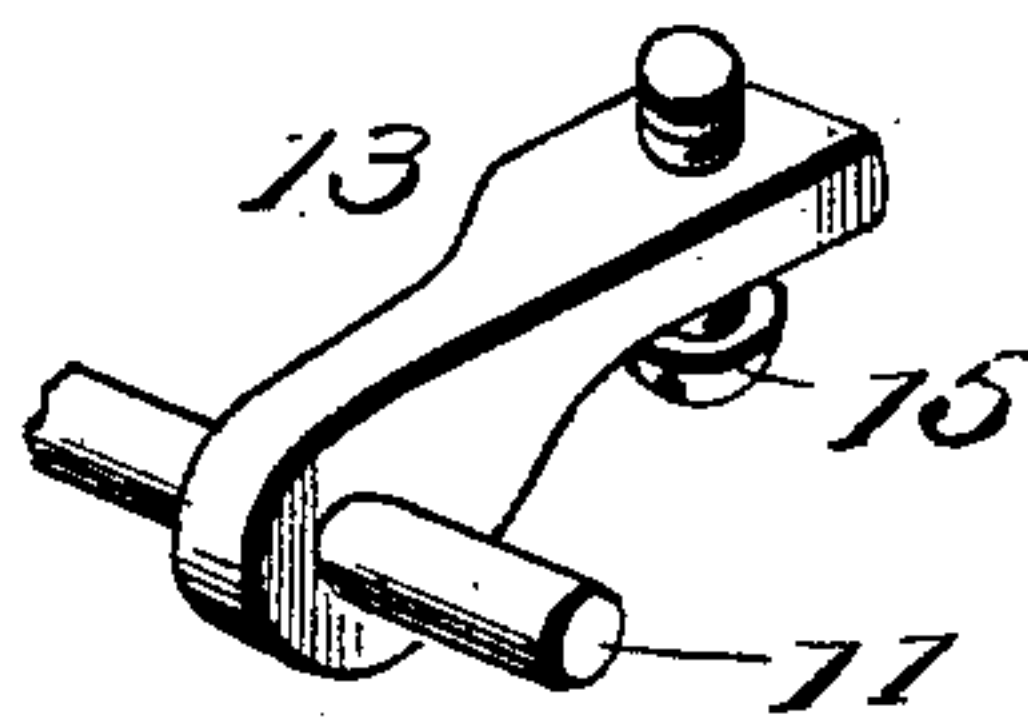


FIG. 3.



Witnesses
John L. Rice
J. Stewart Rice.

Inventor
George W. Nistle,
By *Thos. E. Robertson* Attorney

UNITED STATES PATENT OFFICE.

GEORGE W. NISTLE, OF CHICAGO, ILLINOIS, ASSIGNOR OF TWO-THIRDS TO
EVERETT W. BROOKS AND ROBERT L. GIFFORD, OF SAME PLACE.

BRAKE.

SPECIFICATION forming part of Letters Patent No. 677,464, dated July 2, 1901.

Application filed February 6, 1901. Serial No. 46,230. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. NISTLE, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented a certain new and useful Improvement in Brakes, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in machine-brakes of that character in which a ball or roller is adapted to work between an inclined plane and a friction-surface; and my object is to produce a brake of this class of the simplest construction which comprises mechanism for positively withdrawing the ball or roller out of its field of action.

Having this object and a generally-improved brake in view, my invention consists in the peculiar construction and combinations of parts, as hereinafter described and then definitely set forth by the claims forming part hereof.

In the accompanying drawings, which represent the preferable embodiment of my invention as I now view it, Figure 1 is an end elevation of such parts of a braking apparatus as are necessary to a proper understanding of my invention; and Fig. 2 is a side elevation of the same. Fig. 3 is a perspective detail.

Referring now to the details of the drawings by numerals, 1 indicates a brake-drum mounted to turn with the shaft 2, which latter is mounted in any suitable bearings. (Not shown.) An ordinary friction-brake 3 is employed, which is fulcrumed to any suitable part of the frame, as at 4, and its shoe 5 is held against the friction-drum 1 by means of the weight 6, shown as being near the outer end of the brake-arm 7. Situated on the left hand, as shown in Fig. 1, is a standard 8, at or near the upper end of which is formed an inclined plane 9, set at such an angle to the friction-drum 1 that a ball (or roller) 10 will through the force of its own gravity tend to roll down into the narrower space between the plane 9 and the drum 1, and thus act as a brake to the drum 1 when the latter is rotating in a direction opposite to that shown by the arrow in Fig. 1. It is obvious that when the shaft 2 and its drum are rotating in

the same direction as the arrow the aforesaid ball 10 will, owing to the divergent angles of the inclined plane 9 and the drum, move in an upward direction, and thereby permit the drum and its shaft to freely rotate. To thus permit the drum 1 and the shaft 2 to rotate in the direction of the arrow, it is necessary to provide some means whereby the brake-shoe 5 and the ball 10 may be moved away from or out of contact with the drum 1. To effect this purpose, I prefer to use the arrangement illustrated in my drawings, which comprises the following mechanism: A rock-shaft 11 is suitably journaled in the standard 8 and in a standard 12 on the opposite side of the base, and this rock-shaft has fixedly secured thereto two levers 13 and 14, one near each end thereof. The lever 13 projects outwardly from the rock-shaft, and an adjustable screw 15 on its end is situated immediately under the roller 10, so that when the shaft 11 is rocked the ball 10 will be raised. The aforesaid lever 14 is on the opposite end of the rock-shaft 11 and carries an antifriction-roller 16, the purpose of which will be described. A cam-rod 17 is provided, which operates these parts as said cam-rod is moved longitudinally by any preferred means, (not shown,) and this cam-rod has two cams 18 and 19 secured thereto, the cam 18 being so situated as to contact with the under side of the brake-arm 7, and the other cam 19 coacting with the lower side of the friction-roller 16, so that when the cam-rod is shifted longitudinally in the direction shown in Fig. 2 the cams will be moved, and thereby lift the brake-arm 7 and the levers 13 and 14 and their ball 10, and thus permit the shaft 2 and its drum to rotate in the direction opposite to that shown by the arrow.

It is believed the foregoing description has been made with sufficient detail to make a description of the operation unnecessary, as it is believed the operation is obvious from the description and the accompanying drawings.

I am aware that a brake is not new which consists of a ball that is drawn in or jammed when the wheel reverses, as such a structure is shown in the United States Patent No. 282,452; also, that it is old to make a brake

with a friction attachment comprising a ball for retarding motion which is provided with a ball held in contact with the wheel by a spring or weighted arm, such as shown in Patent No. 551,796, and I am also aware that it is old to have a roller acting between an inclined plane and a drum, combined with a lever for moving the roller out of contact with the drum, so as to allow the latter to rotate, but regard my invention as essentially different from either of these.

I regard the combination of the ball with its inclined plane and the brake-shoe as important for the reason that the application of the ball alone might at times produce a shock and break something, and the friction brake-shoe without the ball would not be sufficiently prompt in all cases, so that both are needed to work simultaneously, and when both are used necessity arises for the accurate timing of their operations, and hence I provide the screw adjustment, so that the two brakes may be timed to work properly. In fact, it is sometimes advisable to so adjust them that the friction brake-shoe takes hold an instant before the ball. This can be easily accomplished by the screw adjustment hereinbefore described.

It is manifest that the form and number of parts may be varied to a considerable extent, and I therefore intend the following claims to cover any and all modifications and variations that naturally come within the scope of my invention.

I have used the term "ball" in referring to the part marked 10; but it is evident that a ball or roller may be used, and therefore where in the following claims I use the term "roller" I intend to cover either a ball or roller.

What I claim as new is—

1. In a brake, the combination of a friction-drum, a brake-shoe coacting therewith; an inclined plane; a roller working between said drum and inclined plane and adapted to be wedged therebetween when the brake is moving in one direction; and means for holding said brake-shoe and said roller out of their working positions, substantially as described.

2. In a brake, the combination of a friction-drum, a brake-shoe suitably supported and arranged to coact therewith, an inclined plane; a roller working between said drum

and inclined plane; a rock-shaft carrying means for positively moving said roller out of working contact with said drum; a lever connected with said rock-shaft; and means for operating said lever and for simultaneously raising the brake-shoe, substantially as described.

3. In a brake, the combination of a friction-drum, a brake-shoe suitably supported and arranged to coact therewith, an inclined plane; a roller working between said drum and inclined plane; a rock-shaft carrying means for positively moving said roller out of working contact with said drum; a lever connected with said rock-shaft; and a cam-rod arranged to coact with said brake-shoe and the aforesaid lever and move said brake-shoe and roller out of working contact with said drum, substantially as described.

4. In a brake the combination of a friction-drum, a brake-shoe suitably supported and arranged to coact therewith; an inclined plane; a roller working between said drum and inclined plane permitting the drum to work freely in one direction and wedging between the drum and inclined surface when the drum moves in the opposite direction; and means for moving said brake-shoe and roller out of working contact with said drum; the said means for moving the roller being adjustable whereby the movement of the shoe and roller may be timed, substantially as described.

5. In a brake, the combination of a friction-drum; a brake-shoe coacting therewith; an inclined plane and a roller acting with said drum and plane and permitting the said drum to move freely in one direction; a rock-shaft carrying a lever arranged to move said roller out of contact with said drum; means for operating said lever and for raising the brake-shoe; the lever for moving the roller being provided with an adjusting-screw, whereby the movements of the roller and brake-shoe may be timed, substantially as described.

In testimony whereof I affix my signature, in the presence of two witnesses, this 2d day of February, 1901.

GEO. W. NISTLE.

Witnesses:

A. W. HAINES,
H. A. RUMSEY.