

No. 687,252.

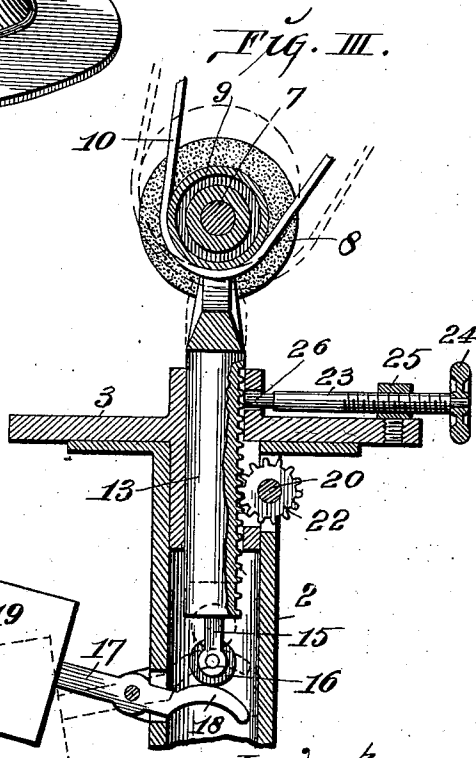
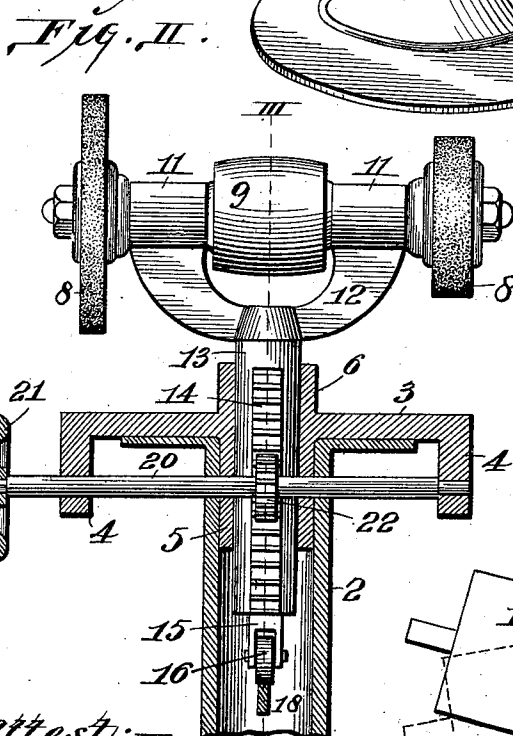
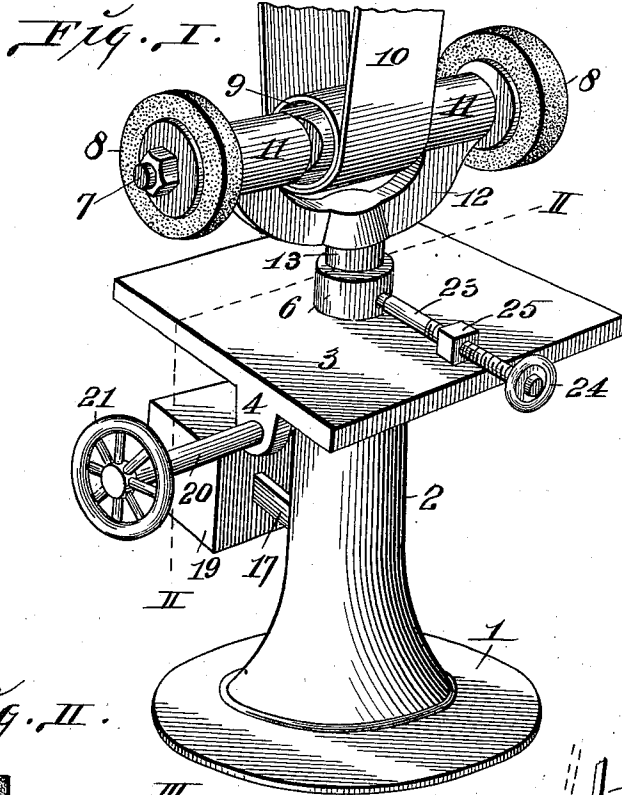
Patented Nov. 26, 1901.

M. MORAN.
BELT TIGHTENER.

(Application filed Aug. 3, 1901.)

(No Model.)

2 Sheets—Sheet 1.



attest:
M. Smith
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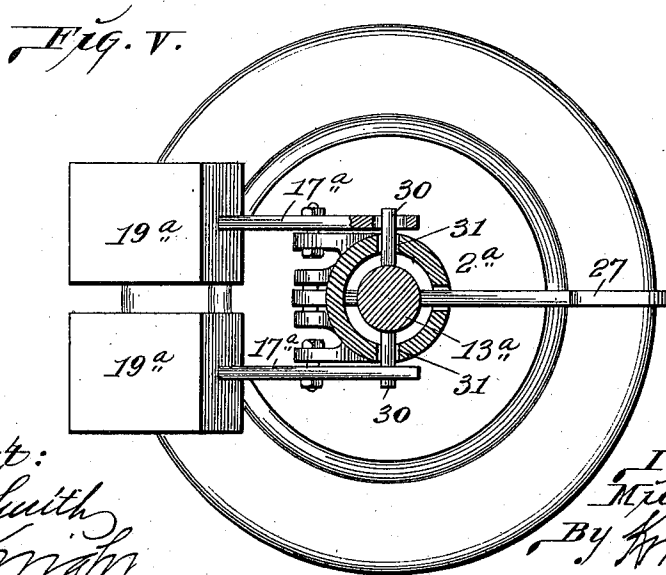
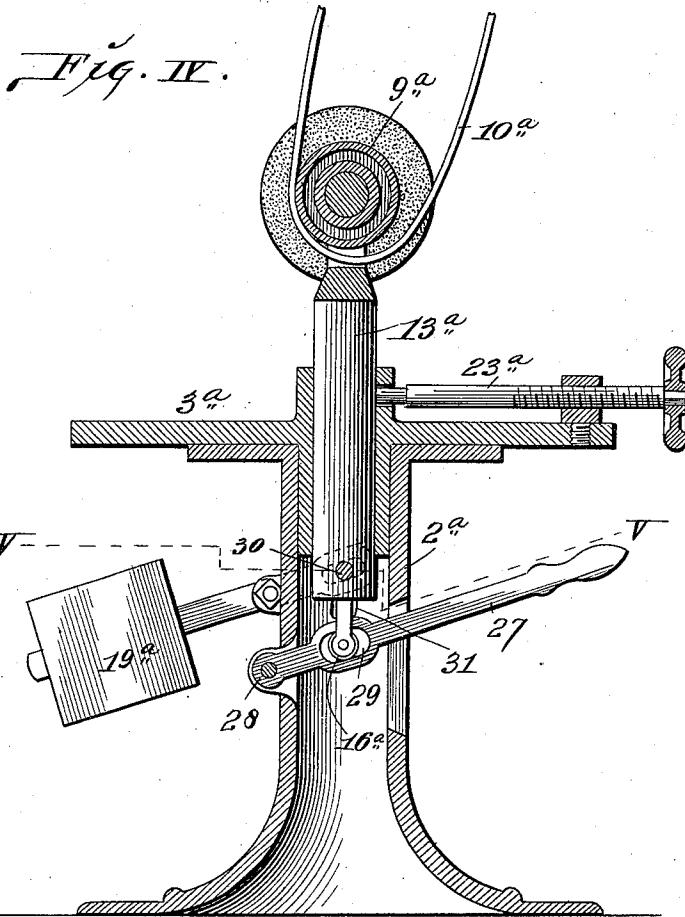
Inventor;
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BELT TIGHTENER.

(Application filed Aug. 3, 1901.)

(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

MICHAEL MORAN, OF ST. LOUIS, MISSOURI.

BELT-TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 687,252, dated November 26, 1901.

Application filed August 3, 1901. Serial No. 70,766. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL MORAN, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Belt-Tighteners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a belt-tightener so constructed as to be capable of being raised and lowered to tighten the driving-belt by which the shaft of an emery-wheel or other machine is driven.

The object of my invention is to provide a construction of belt-tightener wherein the usual counter-shaft may be dispensed with and the driving-belt be tightened or slackened to drive the shaft of the machine and throw said shaft out of operation.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a perspective view of an emery-wheel or grinding-machine constructed according to my invention. Fig. II is a view, partly in elevation and partly in vertical section, taken on the line II II, Fig. I. Fig. III is a vertical sectional view taken on the line III III, Fig. II. Fig. IV is a view, partly in elevation and partly in vertical section, of a modification. Fig. V is a view in horizontal section, taken on the line V V, Fig. IV.

1 designates a base surmounted by a tubular post 2, that supports a table 3, having downwardly-extending ears 4. The table 3 is provided with a central bushing that extends downwardly into the post 2 and has an upwardly-projecting tubular extension 6.

7 is a shaft mounted in bearings 11, carried by a yoke 12, that is in turn carried by a stem 13, provided in its face with a rack 14 and fits loosely in the bushing 5 and extension 6 of the table 3. The stem 13 extends downwardly into the tubular post 2 and is provided at its lower end with a fork 15, in which a roller 16 is journaled.

17 designates a lever swingingly connected to the post 2 and having an arm 18, that extends through a slot in said post and occupies a position immediately beneath the roller 16 and on which said roller rests. The outer

end of the lever 17 has mounted upon it a counterbalance 19, the weight of which is in excess of the stem 13 and the parts of the machine that are carried thereby, so that when said stem is free from restraint said counterbalance will serve to elevate the stem and carry the shaft 7 and driven pulley 9 to a sufficient elevation to produce a slack condition of the drive-belt 10, that passes around said driven pulley.

20 designates a shaft mounted in the ears 4, depending from the table 3, and provided with a hand-wheel 21. The shaft 20 passes through the post 2 and the bushing 5 therein and has rigidly fixed thereto a pinion 22, arranged in mesh with the rack 14 of the stem 13.

23 designates a restraining-screw provided with a hand-wheel 24 and seated in an interiorly-screw-threaded bearing 25 on the table 3. The inner end 26 of the screw 23 passes through the extension 6 and is adapted to be moved into engagement with the stem 13.

When the use of the machine is desired to tighten the belt 10 on the pulley 9, the stem 13 is lowered to carry said pulley and its shaft downwardly, the lowering of the stem being accomplished by the turning of the shaft 20 through the medium of the hand-wheel 21 thereon. Rotation of said shaft causes the pinion 22, in mesh with the rack of said stem, to be rotated and carry the stem downwardly to the desired extent, so that the drive-belt 10 will be made taut. When the stem has been lowered the desired degree, the retaining-screw 23 is moved inwardly and its inner end 26 is caused to bear against the stem 13 and hold it from being elevated under the action of the counterbalance 19. When it is desired to slacken the belt 10 and throw the shaft 7 out of operation, the retaining-screw 23 is released from engagement with the stem 13 and the counterbalance 19 acts upon the lever 17 to lower the outer end thereof and raise the arm 18 within the post 2, and as a consequence the stem is moved upwardly until the drive-belt becomes loose around the driven pulley 9, about which it may continue to run in a slack condition without imparting movement to said pulley.

In Figs. IV and V, I have shown a modification wherein the rack and pinion are dispensed with and a hand-lever 27 is provided

for use in lowering said stem. The hand-lever 27 passes through a slot in the post 2^a of the machine and is pivoted at 28 to said post. The hand-lever is provided with an elongated opening 29, that receives the roller 16^a, carried by the stem 13^a, and in which said roller is permitted to play in the movement of said lever. Seated in the stem 13^a are pins 30, that extend through slots 31 in the post 2^a and to which the levers 17^a are connected, said levers being pivotally supported on brackets extending from the post 2^a and being equipped with counterbalances 19^a, that serve to elevate the stem 13^a when it is free from restraint. In this construction the stem 13^a is held in lowered position by the retaining-screw 23^a in a similar manner to that herebefore described.

I claim as my invention—

1. In a belt-tightener, the combination of a post, a stem arranged for vertical movement in said post, a shaft and pulley carried by said stem, means for lowering said stem, means for retaining said stem in lowered position, and a counterbalance adapted to elevate said stem when free from restraint, substantially as described.

2. In a belt-tightener, the combination of a post, a stem arranged for vertical movement in said post, a shaft and pulley carried by said stem, means for lowering said stem, means for retaining said stem in lowered position, a lever pivoted to said post, and having an arm

extending thereinto beneath said stem, and a counterbalance mounted on said lever adapted to depress the lever and elevate said stem when the stem is free from restraint, substantially as described.

3. In a belt-tightener, the combination of a post, a stem provided with a rack and arranged for vertical movement in said post, a shaft and pulley carried by said stem, a pinion arranged in mesh with the rack of said stem, a shaft on which said pinion is mounted, a retaining-screw adapted for engagement with said stem, and means for elevating said stem when free from restraint, substantially as described.

4. In a belt-tightener, the combination of a post, a stem provided with a rack and arranged for vertical movement in said post, a shaft and pulley carried by said stem, a pinion arranged in mesh with the rack of said stem, a shaft on which said pinion is mounted, a retaining-screw adapted for engagement with said stem, a lever having an arm positioned beneath said stem, and a counterbalance mounted on said lever, substantially as described.

In testimony whereof I have hereunto affixed my signature this 31st day of July, 1901.

MICHAEL MORAN.

In presence of—
E. S. KNIGHT,
M. P. SMITH.