

G. H. MEISER.  
MOTOR CYCLE BELT TIGHTENER.  
APPLICATION FILED APR. 21, 1908.

948,181.

Patented Feb. 1, 1910.

2 SHEETS—SHEET 1.

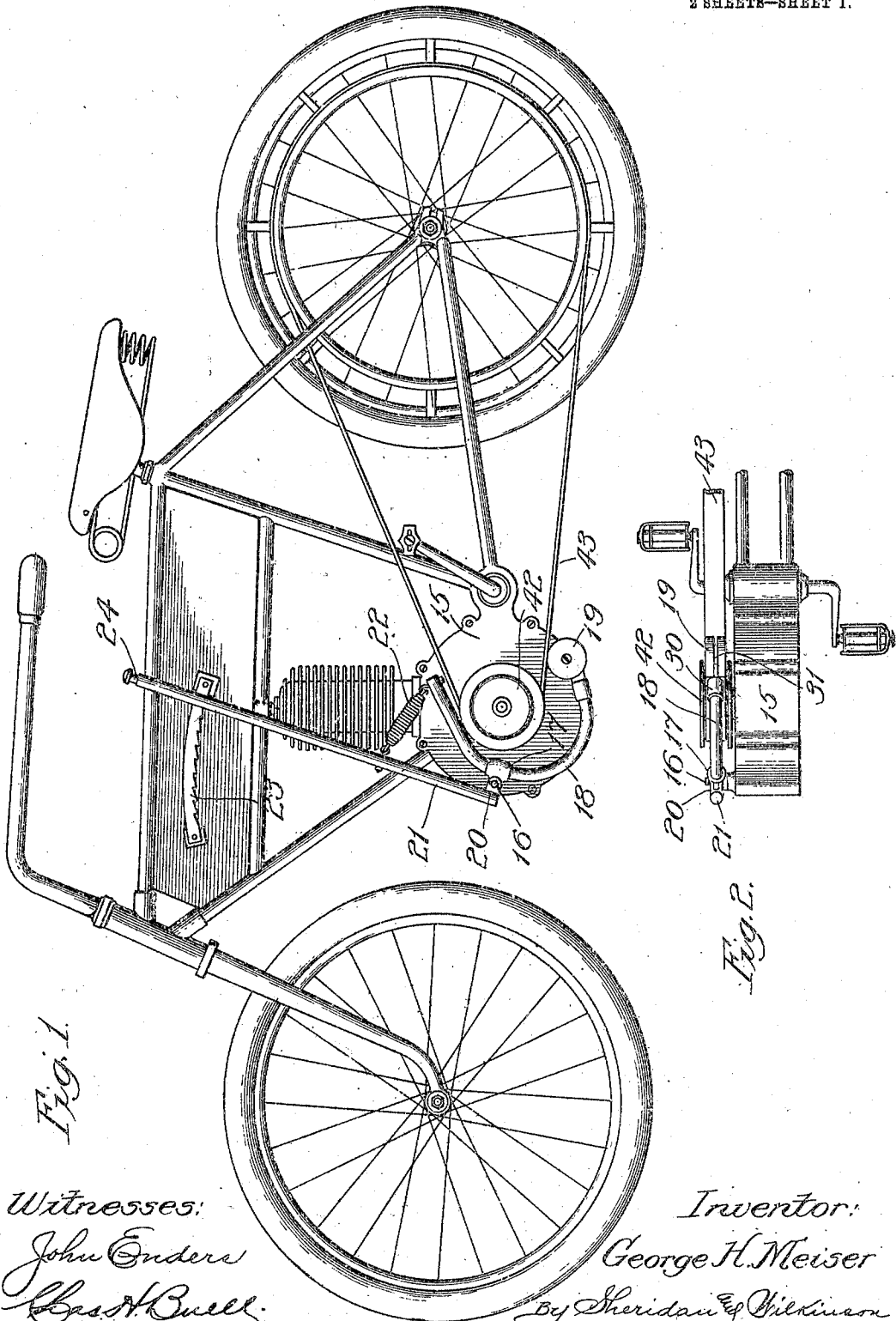


Fig. 1.

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 5.

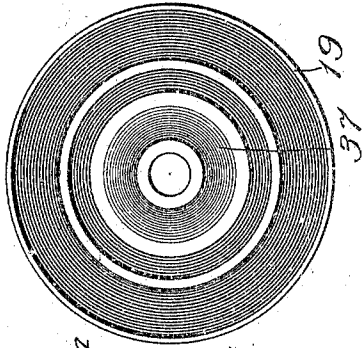


Fig. 4.

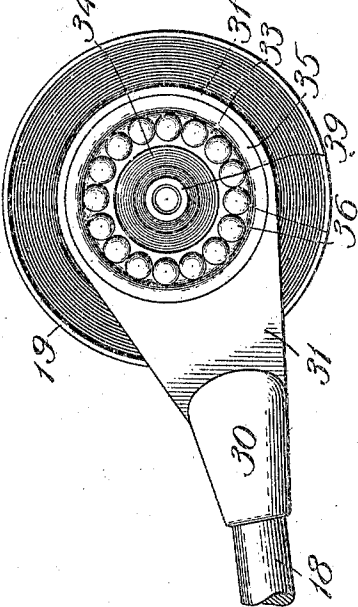


Fig. 7.

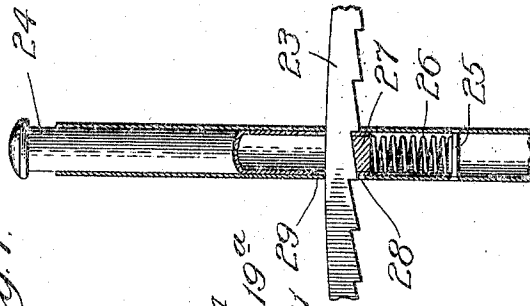


Fig. 6.

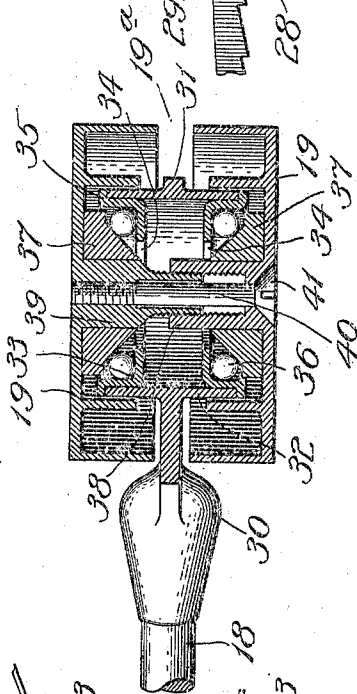
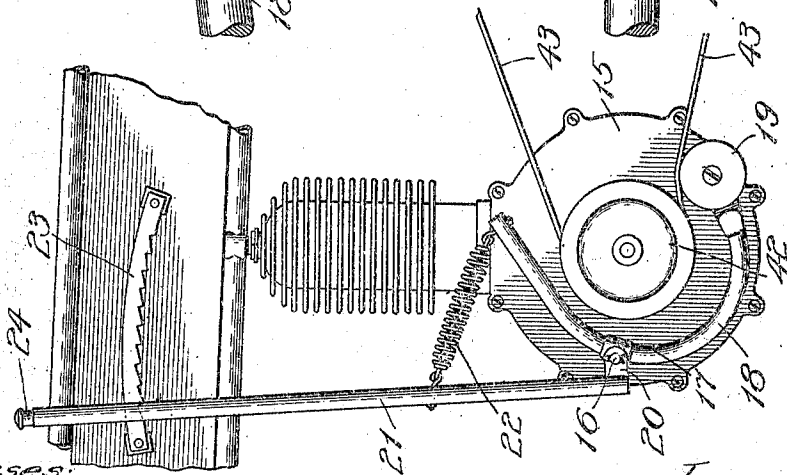


Fig. 3.



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# UNITED STATES PATENT OFFICE.

GEORGE H. MEISER, OF CHICAGO, ILLINOIS, ASSIGNOR TO EXCELSIOR SUPPLY COMPANY, A CORPORATION OF ILLINOIS.

## MOTOR-CYCLE-BELT TIGHTENER.

948,181.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed April 21, 1908. Serial No. 428,356.

*To all whom it may concern:*

Be it known that I, GEORGE H. MEISER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Motor-Cycle-Belt Tighteners, of which the following is a specification.

The object of my invention is to provide an improved belt tightener adapted to be used on motor cycles employing a driving belt.

More particularly my object is to provide such a tightener which shall not increase the aggregate width of the machine, which shall be held to the belt by adjustable spring pressure, which shall not only serve to tighten the belt but to increase the tractive contact surface with the driving pulley, and which shall also have effective means to lock it in any desired adjustment.

These are my principal objects both severally and collectively. They will be made apparent in the following specification and claims, together with other objects of detail.

Referring to the accompanying drawings—Figure 1 is a side elevation of a motor-cycle embodying my invention. Fig. 2 is an under view of the engine casing and associated parts. Fig. 3 is a side elevation of the belt tightener. Fig. 4 is an elevation showing the mounting for the belt tightener pulley, one part of said pulley being removed. Fig. 5 is an inside view of the part of the pulley removed from Fig. 4. Fig. 6 is an axial section of the pulley and its mounting. Fig. 7 is a longitudinal section of the upper end of the control lever showing the means of locking it in any desired position.

The engine has the usual crank casing 15 from which a pivot pin 16 projects. The sleeve 17 is brazed to the bent tubular lever 18 and has a hole which engages the aforesaid pivot pin 16. At its lower end the said bent lever 18 carries a belt tightening idler wheel 19 which will be more fully described later. Attached to the lower end of the lever 21 is a fork or jaw 20 which embraces the perforated member of the sleeve 17 having holes which also engage the pins 16. Thus both the levers 18 and 21 have the common fulcrum 16. A tension spring 22 connects the upper end of the lever 18 to an

intermediate point on the lever 21. The lever 21 is tubular, and near its upper end it has a slot 28 through which passes the fixed notched sector 23. Fitting loosely within the tubular handle 21 is a circular sliding plug 24 having a notch 29 at its lower end which also surrounds the sector 23. Below the plug 24 is a transverse rivet 25 and between this and the lower end 27 of the said plug is a compression coil spring 26. It will be seen that when the upper end of the tubular lever 21 is seized by the hand the plug 24 may be pushed down by the thumb so as to compress the spring 26 and disengage the end 27 from the sector 23, and when the pressure of the thumb is removed the spring 26 will cause the lower end 27 to again engage the notched sector 23.

The idler pulley and its mounting will now be described more in detail. An extension support 30 projects from the lower end of the bent lever 18, and ends in a short wide cylindrical shell 32 having a central strengthening rib 31 about its periphery. The ball-races or cups 33 are inserted in the ends of said cylindrical shell 32, being held in a definite position by means of the flanges 35 which overhang the edges of the shell 32. These ball-bearing members 33 are cut away centrally as indicated by the reference numeral 34. The pulley 19 consists of two members separated by a peripheral slot 19<sup>a</sup> through which the extension arm 30 projects. Each of the two members of the pulley 19 carries a cone 37 adapted to co-act with the ball-races 33 and the balls 36. A projection 38 from the inside of one pulley member 19 has female screw threads which are adapted to be engaged by the oppositely projecting male screw 39 from the other pulley member. Thus the two pulley members 19 may be screwed together until the desired adjustment of the cones 37 with respect to the balls 36 and ball-races 33 is secured. There is a long screw 40 having a screw head 41 adapted to firmly clamp the two pulley members 19 together and serving to lock them in the desired adjustment just described.

The flanged driving pulley is represented by the reference numeral 42 and the driving belt thereon by the reference numeral 43.

Only a brief description of the operation of my invention will be necessary, for in the main it will be obvious from the foregoing description of the structure. It will be seen

that the handle end of the lever 21 is in a position where it can readily be reached by the rider of the motor cycle. By pushing the handle forward the spring 22 is subjected to a tension, the effect of which is to press the belt tightener pulley 19 up against the slack side of the belt 43 and thus not only tighten the belt, but also increase the extent of contact between the belt and the driving pulley 42.

10 This effect will be apparent on inspection of Fig. 3. Whenever the belt is to be slacked the plug 24 can be depressed by means of the operator's thumb, thus unlocking the lever 21 and permitting the withdrawal of the

15 idler wheel 19.

In motor-cycles it is important to keep the width over all of the parts down as much as possible. It is especially desirable to reduce the widths of the parts in the neighborhood of the pedals so that the operator may not be obliged to straddle inconveniently. It will be observed that I have designed a device for tightening the belt which adds nothing to the total width of the machine. This is especially apparent on viewing Fig. 2.

20 The split pulley 19 with its mounting, which has been described in detail, may be no wider than the belt 43.

It is very important that the lever 21, which reaches up beside the knee of the operator, should have a locking device without any projecting parts that might be caught on the operator's knee. It will be observed that I have provided a locking device which is contained within the tubular lever 21 and which thus affords a satisfactory solution of the requirement just referred to.

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By putting a belt tightener controlling lever in a position where it can readily be reached by the operator, I have greatly improved the facility with which the motor-cycle can be managed. The tightener can be set so that at the instant of the explosion in the engine the pulley will slip very slightly on the belt, although it will stick at other times. Thus the machine and the rider are relieved from jerks due to the explosions. Sometimes in hill climbing the belt can be partially slacked so as to prevent stopping of the engine. An experienced operator will soon learn how to use the apparatus of this invention so as to greatly facilitate the running of his machine.

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I claim:

55 1. In a motor cycle, a driving pulley, a belt thereon, an arm in the plane of the driving pulley carrying a pair of outwardly directed ball bearing members at its end, and a split pulley, each half thereof having

an inwardly directed conical ball bearing member and having extensions adapted to engage one another through the said outwardly directed members, the split pulley when assembled leaving a peripheral slot between its members through which the arm projects.

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2. In a motor cycle having a driving pulley and belt thereon, a pivot pin mounted in front of said pulley, a bent lever pivoted thereon having its ends extending below and above said pulley, a belt tightening idler pulley borne by the lower end of the lever, a second lever pivoted on the same pin, and a spring connecting the two levers.

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3. In a motor cycle, a driving pulley, a belt thereon, an arm in the plane of the driving pulley carrying a transverse hollow cylinder at its end, ball bearing cups resting in the ends of said cylinder, a split pulley each half thereof having an inwardly directed conical ball bearing member and having extensions adapted to engage one another through the said ball bearing cups and conical member, the split pulley when assembled leaving a peripheral slot between its halves through which the arm projects.

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4. In a motor cycle a driving pulley, a belt thereon, a pivot pin mounted in front of said pulley, a bent lever pivoted thereon having its ends extending below and above said pulley, a belt tightening idler pulley borne by the lower end of the lever, a hand lever having one end pivoted on said pivot pin, and a spring connecting an intermediate point on said hand lever to the upper end of the bent lever.

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5. In a motor cycle, an engine, a casing therefor, a driving pulley on the side of the casing, a shaft in fixed relation to the casing, a driven wheel on the shaft in alignment with the driving pulley, a driving belt on said pulley, a pivot pin projecting from the casing at a point beyond the pulley from the said wheel, an idler wheel, an arm pivoted at an intermediate point thereof on said pin and carrying said idler wheel at one end thereof adapted to press against the said belt, and adjustable means connected to the opposite end of the arm to exert a yielding pressure of said idler wheel against the belt.

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In testimony whereof, I have subscribed my name.

GEORGE H. MEISER.

Witnesses:

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