B. M. W. HANSON.

BELT TENSION REGULATING MECHANISM.

APPLICATION FILED JUNE 2, 1908.

905,525. Patented Dec. 1, 1908.

Fig. 2.

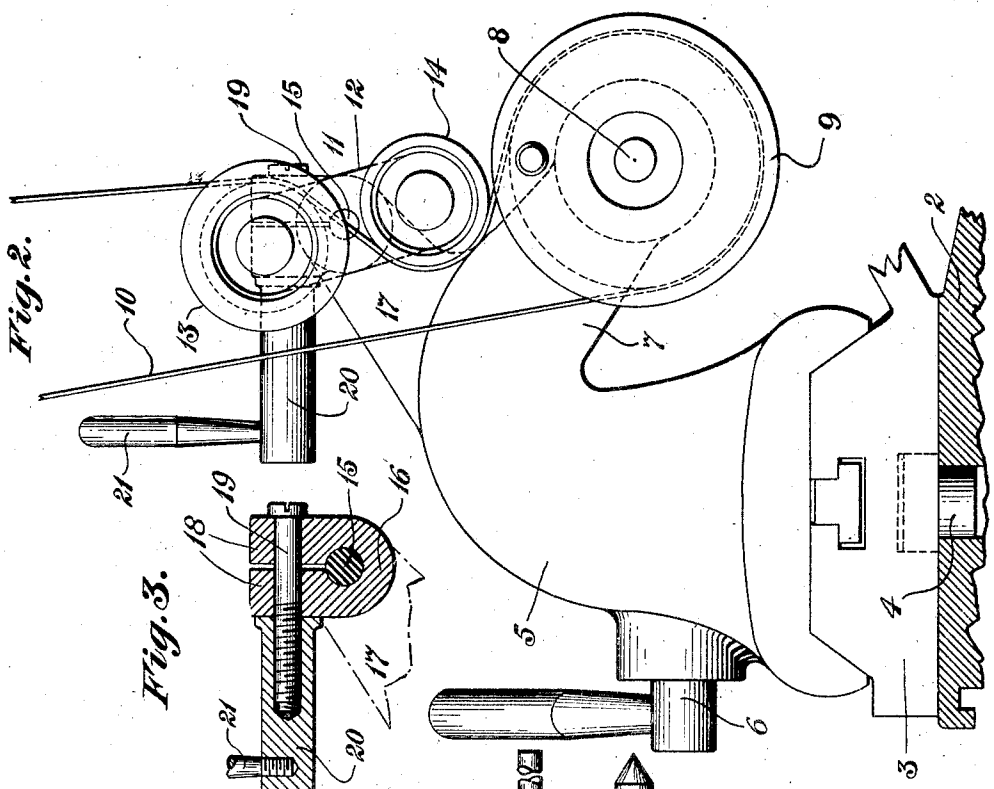
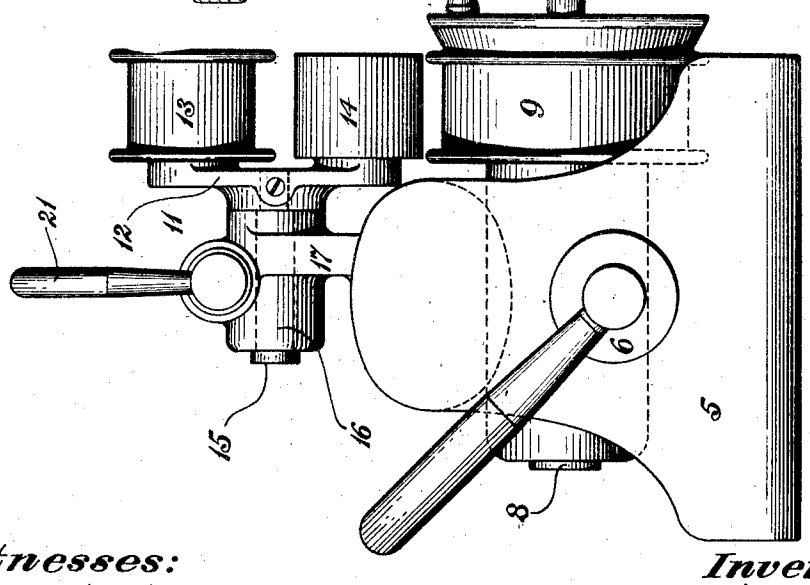


Fig. 3.

Fig. 1



Witnesses:

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UNITED STATES PATENT OFFICE.

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BELT-TENSION-REGULATING MECHANISM.

No. 905,525. Specification of Letters Patent. Patented Dec. 1, 1908.

Application filed June 2, 1908. Serial No. 436,201.

To all whom it may concern:

Be it known that I, BENGT M. W. HANSON, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Belt-Tension-Regulating Mechanism, of which the following is a specification.

This invention relates to belt-tension-regulating mechanism, the object of the invention being to provide effective mechanism of the character set forth which is susceptible of advantageous use in a variety of ways and by which the tension of a belt can be easily and precisely regulated.

In the drawings accompanying and forming part of this specification I have shown in detail one simple form of embodiment of the invention which to enable those skilled in the art to practice the same will be set forth in detail in the following description while the novelty of the invention will be included in the claims succeeding said description. In said form of embodiment of the invention I have shown the latter in combination with or as part of a metal-working machine having a swinging platen supporting a pulley or equivalent driven wheel operable from a belt extending from a drum sustained by a part supported independently of the platen. As the platen is swung during the operation of said machine the relation between the pulley thereon and the drum changes so that ordinarily the tension of the belt is so affected as to cause improper action of the pulley. To secure a proper control of the belt I mount on the platen a tension-regulator which is manually-operable and which prior to an adjustment of the platen will be manipulated to permit free swinging of the platen and when the adjustment of the latter has been obtained the tension-regulator will be adjusted to secure the precise tension in the belt to insure the best possible driving effect.

Referring to said drawings, Figure 1 is a front elevation of the head stock of a metal-working machine equipped with tension-regulating means involving my invention. Fig. 2 is an end elevation of the same, a supporting platen for the head stock, and a bed, the latter being in section. Fig. 3 is a sectional detail hereinafter more particularly described.

Like characters refer to like parts throughout the several figures of the drawings.

The particular character of machine shown in part in the drawings is one for grinding metal and such a machine includes in its make up a base or bed as 2. Upon this bed is mounted a platen as 3 which is ordinarily mounted for swinging movement about a vertical axis; it is shown as having a pivotal connection as 4 with the base or bed 2. The platen is mounted to swing so that the angle of a tool carried thereby can be varied with respect to the work. While the tool and its adjuncts, by which I mean its spindle and operating pulley are supported by the platen, they are not in the present case directly carried thereby but by a head-stock as 5 which has a sliding movement on and longitudinally of the platen 3, the head-stock being held in an adjusted position by a clamping-device such as that denoted in a general way by 6.

The head-stock is shown as having a curved, overhanging arm as 7 terminating in a hub which rotatively receives a work-spindle as 8 to which is fastened in some suitable manner a wide-faced pulley as 9 which with its spindle partakes of the swinging movement of the platen 3. The pulley 9 may be driven by a belt as 10 passed over a drum (not shown) but which is generally placed overhead and is carried by fixed bearings or hangers. When the platen is swung relatively to this drum the axis of the pulley 9 at one time will be in one relation with the drum while at other times the relation will be different and were it not for the belt-tension regulator the tension of the said belt might be at one period too great and at another it might be too small, the rotation of the work being naturally affected.

I provide a tension-regulator which swings with the platen and which can be easily operated to obtain the exact tension in the belt; such regulator by virtue of its location being readily accessible. I will now describe the form of tension-regulator shown. Said regulator is designated in a general way by 11 and includes in its construction an arm as 12 at the opposite ends of which are rotatively mounted pulleys as 13 and 14 and against which is placed one of the runs of the belt 10. The arm 12 is preferably mounted for swinging movement

upon an axis between its ends for which purpose it may be provided with a pivot as 15 extending through a split hub or collar as 16 on the horn or projection 17 extending from the arm 7. The stub-shafts for the pulleys 13 and 14 extend from one side of the arm 12 and the pivot or stud 15 extends from the opposite side of said arm 12. It might be stated that what is shown as the run of the belt 10 on the right in Fig. 2 is shown as placed against the outer side of the upper pulley 13 and the inner side of the lower pulley 14. Should the tension of the belt 10 therefore be not as required the difficulty can be easily and quickly remedied by rocking the arm 12. It will be clear that the arm 12 does not normally oscillate or rock but is only swung when an adjustment of the belt is to be obtained after which the arm 12 is firmly held in the adjusted relation and the means shown for obtaining this function will now be set forth.

The split hub 16 has upstanding ears or lugs as 18 perforated to receive a screw as 19 the head of which bears against one of said lugs while a nut as 20 threaded onto said screw bears against the other lug when the clamping means for the pivot or stud 15 is in operative relation. The nut 20 has a handle 21 by which it may be easily operated. By turning the nut 20 to the left the clamping pressure of the split hub 16 on the pivot or stud 15 can be relieved so that the arm 12 can be adjusted after which the nut will be set up to maintain the adjustment.

In some cases it is not necessary to operate the tension-regulator 11 prior to the swing of the platen 3. If for example the operator of the machine knows that the swing of the platen will result in loosening the belt 10 it is not necessary for him to touch the tension-regulator 11 until after the platen 3 has been adjusted at which time the tension-regulator will be manipulated to take the slack out of the belt. If on the contrary he knows that the shifting of the platen would tend to tighten the belt it will be necessary to loosen up the tension-regulator and after the adjustment of the platen is secured, said regulator will be manipulated to take out the slack in the belt. As the regulator swings to eliminate belt-slack the upper pulley 13 moves outward while the lower pulley 14 moves inward and the arm 12 may be grasped by the operator to accomplish such result.

What I claim is:

1. A belt tightening device comprising an arm, a laterally extending pin on one side of the arm, constituting a pivot therefor, a pair of pulleys supported by the arm at the opposite side thereof and also located at opposite sides of said pivot, a split bearing for receiving said pin, and means for drawing the bearing around the pin to clamp the same and thereby hold the arm in an adjusted position.

2. The combination of a pulley, an arm having a laterally-extending pin on one side thereof, a pair of pulleys at the opposite side of said arm, a split hub in which said pin turns as a pivot, the pulleys being located at opposite sides of the axis of motion of said arm and being coöperative with said first mentioned pulley, and means for drawing the hub into clamping relation with said pin.

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

BENGT M. W. HANSON.

Witnesses:
W. M. Storrs,
H. W. Kilbourne.