E. W. GUNN, G. D. & H. WELLS.

Emery-Grinding Machine.

No. 161,951. Patented April 13, 1875.

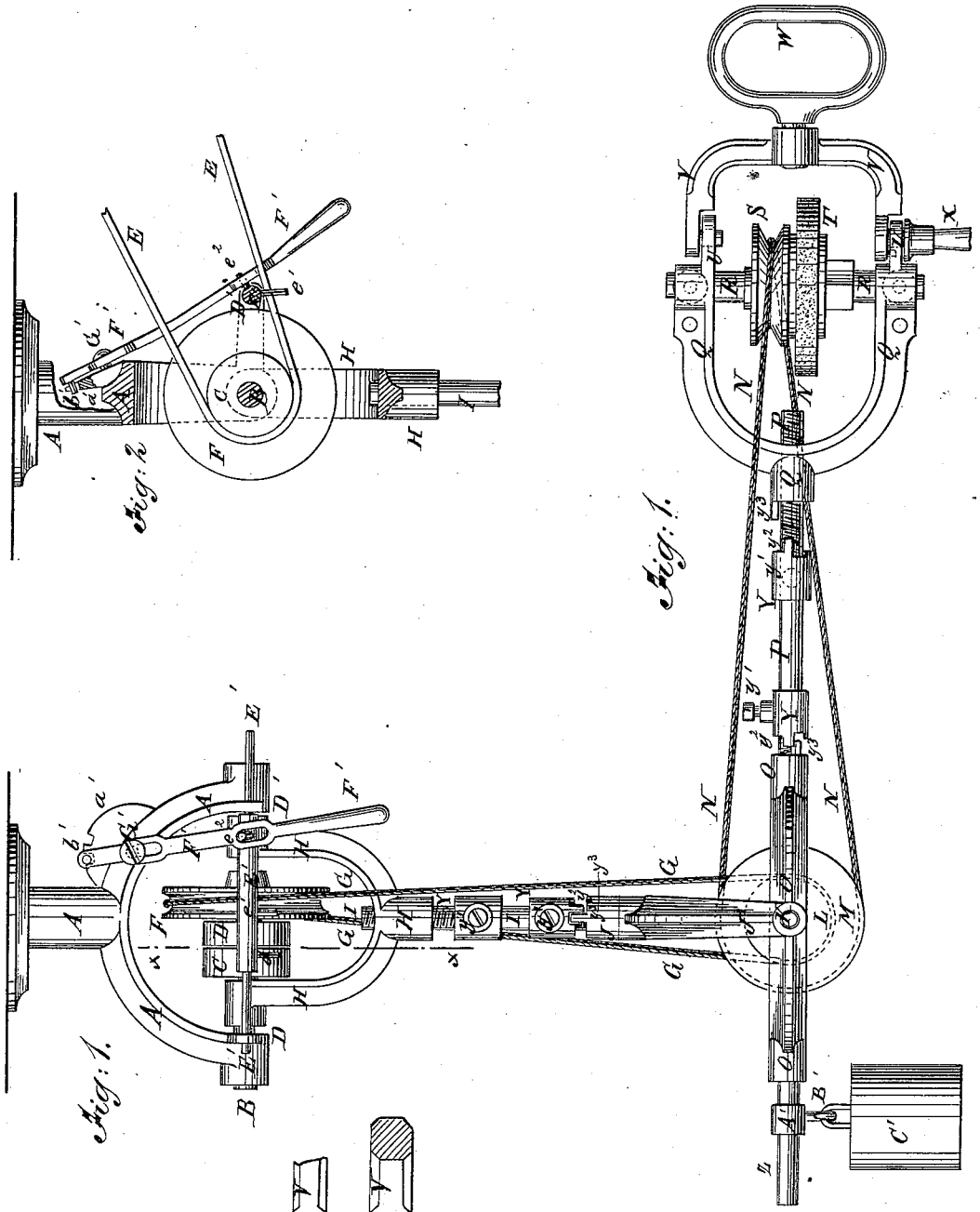

Fig. 2.

Fig. 1.

Fig. 1.

Fig. 3.

Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

E. WILLIAM GUNN, OF NEW WOODSTOCK, AND GEORGE D. WELLS AND HARRISON WELLS, OF ERIEVILLE, NEW YORK.

IMPROVEMENT IN EMERY GRINDING-MACHINES.

Specification forming part of Letters Patent No. **161,951**, dated April 13, 1875; application filed January 25, 1875.

To all whom it may concern:

Be it known that we, E. WILLIAM GUNN, of New Woodstock, in the county of Madison and State of New York, and GEORGE D. WELLS and HARRISON WELLS, of Erieville, in the county of Madison and State of New York, have invented a new and useful Improvement in Universal-Joint Emery-Wheel Machine, of which the following is a specification:

Figure 1 is a side view of our improved machine. Fig. 2 is a detail section of the same, taken through the line *x x*, Fig. 1. Fig. 3 represents the adjustable locking-joint for the handle-yoke. Fig. 4 represents one of the lugs with which the ends of the handle-yoke are connected.

Similar letters of reference indicate corresponding parts.

Our invention has for its object to furnish an improved emery-wheel machine, which shall be so constructed that the emery-wheel may be turned into any position that the form of the work being ground may require without stopping the wheel or checking its speed, and which shall be simple in construction and convenient in use, being so constructed as to expand and contract as the band is twisted and straightened in using the machine, and which will enable the bands to be readily slackened and tightened as may be required.

The invention consists in the joint or connection formed by the combination with the yokes or frame-pieces of one or two rods, having right and left screw-threads cut upon their opposite ends; in the combination of the adjustable collars and the toes or projections and notches with the screw-rods, either or both, and the pivoted yokes; in the combination of the adjustable yoke-handle, provided with pivots and a stop-pin, the nut-handle, and the lugs, provided with pivot and stop-pin holes, with the yoke that carries the emery-wheel, all as hereinafter described.

A is a yoke, designed to be attached to the ceiling or other suitable support, and to the arms of which is attached a short shaft, B, upon which are placed two pulleys, C D, to receive the driving-belt E, and a large pulley, F, to receive the band G. The pulley C runs loosely upon the shaft B, and the pulley D is rigidly connected with the pulley F, so as to carry the said pulley F with it in its revolution. Upon the shaft B is hung the arms of a yoke, H, in the base of which is formed a screw-hole to receive the screw-thread formed upon the end of the rod I. The other end of the rod I has a screw-thread cut upon it, which screws into a screw-hole formed in the base of the yoke J. The rod I has a right screw-thread cut upon one end, and a left screw-thread upon the other end, so that by turning the rod I in one direction the yokes H J may be drawn toward each other to slacken the band G, and by turning said rod in the other direction the said yokes H J may be forced apart to tighten the said band G. To the arms of the yoke J is attached a short shaft, K, upon which are placed two pulleys L M, of unequal size, and which are formed in one piece, or are rigidly connected together. The smaller pulley L receives the band G, and the larger pulley M receives the band N. To the shaft K are also pivoted the middle parts of the side bars or arms of the double yoke O, in the forward base or bend of which is formed a screw-hole to receive the screw-thread formed upon the end of the rod P. Upon the other end of the rod P is cut a screw-thread to screw into a screw-hole in the base or bend of the yoke Q. Right and left screw-threads are formed upon the ends of the rod P, so that by turning the said rod in one or the other direction the yokes O and Q may be moved toward or from each other, to slacken or tighten the band N. In bearings in the ends of the yoke Q revolves a shaft, R, to which is attached a pulley, S, to receive the band N, and also the emery-wheel T, by which the grinding is done. The emery-wheel T may be attached to the shaft R within the arms of the yoke Q, as shown in Fig. 1, or the said shaft may be extended, and an emery-wheel attached to either or both ends. In fact, any desired number of emery-wheels may be attached to the shaft R, or a single wheel may be used, attached to any desired part of the said shaft R, as may be most convenient, considering the character of the work to be done. Upon the ends of the arms of the yoke Q are formed lugs U, having holes formed in them to receive pivots

formed upon or attached to the ends of the yoke V, upon the base of which is formed, or to it is attached, a handle, W. One of the pivots of the handle-yoke W V projects inward, and the other outward, for convenience in inserting them in the pivot-holes of the lugs U. The outwardly-projecting pivot is made long, and has a screw-thread upon it to fit into the screw-hole formed in the handle X, which thus serves the double purpose of a nut to fasten the handle-yoke in place, and of a handle for controlling the machine. Another handle may be attached to the other arm of the handle-yoke, if desired. To the end of the handle-yoke V is attached, or upon it is formed, a point or pin, v', to enter one or the other of a circle of holes formed in the adjacent face of the lug U, to prevent the said handle-yoke from turning upon its pivots, and to enable said handle-yoke to be adjusted at any desired angle. Upon the rods I and P, either or both, are placed collars, which are secured in place by set-screws y^1, and are provided with toes and notches y^2, to impinge upon and interlock with a toe, y^3, formed upon the yokes.

By this construction, by adjusting the collars Y the movements of the rods and yokes upon each other may be limited or entirely prevented, as may be desired.

Into a screw-hole in the rear base or bend of the double yoke O is secured a rod, Z, upon which is placed a collar, A′, into one side of which is secured the shank of a hook, B′, to receive a weight, C′, for balancing the forward part of the machine, with which the emery-wheel is connected, and enable said wheel to be easily guided and controlled. Upon the forward side of the arms of the yoke A are formed arms D′, in the ends of which are formed holes to receive the bar E′ of the belt-shifter. One or both the holes of the arms D′, and one or both the ends of the bar E′, are made square, to prevent the said bar E′ from turning. To the bar E′ are attached two pins, e^1, to take hold of the driving-belt, and shift it from one to the other of the pulleys C D. To the side of the bar E′ is attached a pin, e^2, to enter a short slot in the lever F′. In the upper part of the lever F′ is formed a short slot, to receive a pin or screw, G′, attached to the yoke A, to serve as a pivot for the said lever F′. To the upper end of the lever F′ is attached, or upon it is formed, a pin, b', to enter one or the other of the notches in the flange a', formed upon the yoke A, to lock the belt E upon either of the pulleys C D.

By this construction, by pushing the lever F′ upward to raise the pin b' out of the notch of the flange a', the said lever F′ may be operated to slide the bar E′, and shift the belt. When the lever F′ is released its own weight draws it down, bringing the pin b' into the notch of the flange a', locking the said lever in position, and thus keeping the driving-belt upon the pulley upon which it has been placed.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination, with the yokes specified, of one or more connecting-rods, having a right-hand screw-thread on one end, and a left-hand screw-thread on the other, as shown and described.

2. The combination of the adjustable collars Y, and the toes or projections and notches y^2 y^3, with the screw-rods I P, either or both, and the pivoted yokes, substantially as herein shown and described.

3. The combination of the adjustable yoke-handle V W, provided with pivots and a stop-pin, the nut-handle X, and the lugs U, provided with pivot and stop-pin holes, with the yoke Q, that carries the emery-wheel, substantially as herein shown and described.

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