Horre & Grannis,

Heddle Machine.

No. 2,273. Patented Sep. 30, 1841.

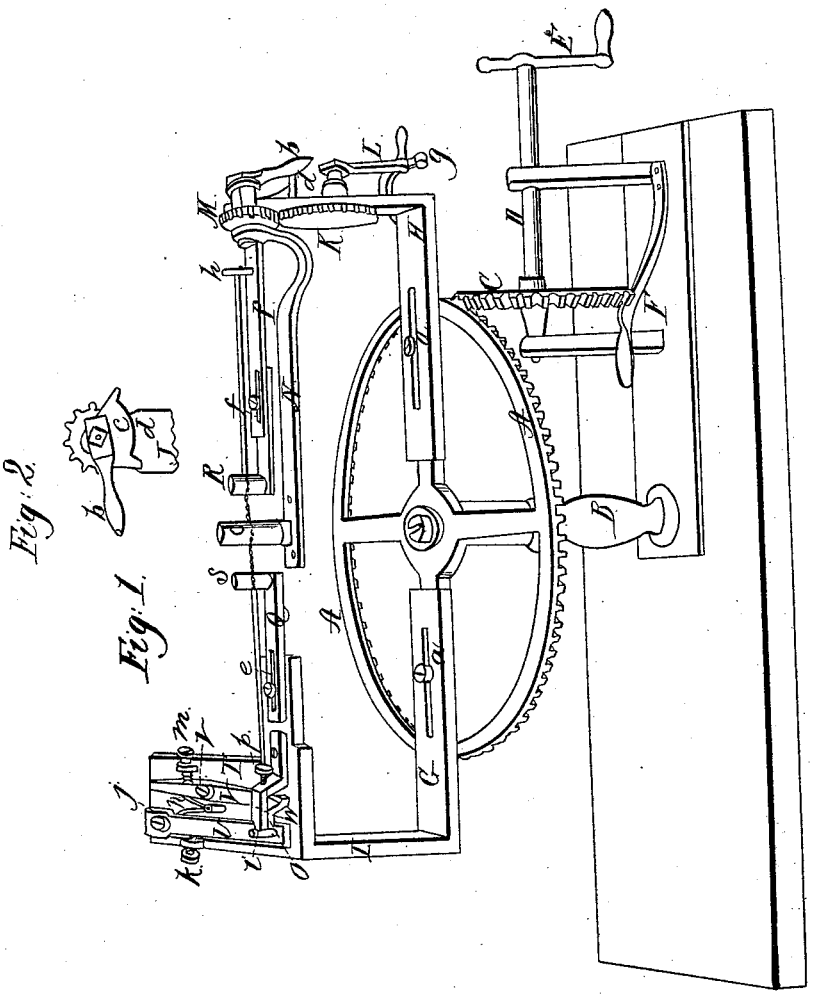

Fig. 2.

Fig. 1.

UNITED STATES PATENT OFFICE.

ABRAHAM HOWE AND SIDNEY S. GRANNIS, OF MORRISVILLE, NEW YORK.

MACHINE FOR MAKING WIRE HEDDLES FOR THE FORMATION OF WEAVERS' HARNESS.

Specification of Letters Patent No. 2,273, dated September 30, 1841.

To all whom it may concern:

Be it known that we, ABRAHAM HOWE and SIDNEY S. GRANNIS, of Morrisville, in the county of Madison and State of New York, have invented a new and useful Machine for the Making of Wire Heddles for the Formation of Harness to be Used in the Process of Weaving; and we do hereby declare that the following is a full and exact description thereof.

This machine is equally applicable to the wire heddles as ordinarily made from two pieces of wire united by a joint, and to those which are made in one entire piece as described in the specification filed in the Patent Office simultaneously with this present application, for the purpose of obtaining Letters Patent for "a new manufacture of wire heddles, by making each heddle in one entire piece."

In the accompanying drawing, Figure 1, is a perspective view of our machine for making wire heddles.

A, A, is a toothed wheel, which may be about eight inches in diameter, and which revolves horizontally upon a post, or standard, B. Into the wheel A, is geared the vertical wheel C, affixed to the axis D, and carried by means of the winch E. Under the wheel C, is a spring latch F, which catches into the teeth of said wheel, and prevents it from revolving excepting when the spring latch is forced down. The principal operating parts of the machine are sustained by the wheel A; and when said wheel is made to revolve, revolve with it.

G, and H, are two adjustable metallic plates which are attached to the wheel A, by the set screws *a*, *a;* by this mode of adjustment the machine may be adapted to the particular length which it is desired to give to the heddle. From the ends of the plates G, and H, rise the vertical standards I, and J.

A toothed wheel K, is affixed to an arbor passing through the standard J, and is turned by the winch L. The wheel K, may be about two inches in diameter, and it mashes into a pinion M, of about one inch in diameter. The pinion M, has attached to it, and carries with it in its revolutions, the arm, or rod, N, which extends to the middle of the machine, and carries on its inner end the stud O, which may be made adjustable, and should be about half an inch wide, three fourths of an inch long, and a sixteenth of an inch thick.

P, and Q, are two shafts which are to remain stationary during the operation of the machine; but the shaft P, may be turned around one quarter of a circle, so as to cause the studs R, and S, to stand at right angles to each other. The part of the shaft P, which passes through the pinion M, and through the standard J, is made round, and has attached to it a handle *b*, and a quadrant plate *c*, having projecting ends which serve as stops against the check pin *d*, by which the relative positions of the studs R, and S, are determined; the arrangement of the quadrant piece is shown separately in Fig. 2. The pinion M, with the arm N, revolve freely on the round part of the arbor, or shaft, P, while the shaft itself remains at rest. The shaft Q, is made adjustable on the table, or bed piece T, by means of the set screw *e;* and the shaft P, is made in two parts, allowing it to be lengthened, or shortened, by means of the set screw *f*. The studs R, and S, which rise at right angles from these shafts, correspond in shape with the form to be given to the loops of the heddles, the wires of which are to be twisted against them and around the stud O; they may be about half an inch wide, and a sixteenth of an inch thick. It will be seen that by the arrangement of the respective shafts and studs their distance from each other may be readily changed, and that the studs R, and S, may be made to stand at right angles to each other. A spring *g*, is affixed to the standard J, and has a catch on its end, bearing with sufficient force upon the end of the winch L, to hold it in place while the wire from which the heddle is to be formed is adjusted on the machine. The wire is to pass around two pins, *h*, and *i*, at opposite ends of the machine, which pins are to hold it, and to form the eye holes in the heddles; they may be of round wire, about three fourths of an inch in length, and an eighth of an inch in diameter; one of them, *h*, is affixed to the outer end of the shaft P, and the other, *i*, rises from a bar, or lever, U, which may be about two inches and a half long, a fourth of an inch wide, and an eighth of an inch thick. This lever works upon a screw, or joint pin, *j*, and is adjusted by a set screw *k*. A second lever V, which may be of about the same size

with the former, works on a screw, or joint pin, *l*, near its center, and is checked by a set screw *m;* a double spring *n*, bears upon each of these levers, as represented in the drawing. The end *o*, of the lever V, bears against the pin *i*, so as to hold the heddle wire against it; and there is, also, a bridge piece W, affixed to the table T, passing over the end *o*, of the lever V, and bearing against said pin, for a like purpose; the end of this bridge piece is made concave, so as to aid in forming the eye. A set screw *p*, passes through the bridge piece, the end of which screw serves to check the lever V. This part of the apparatus may be differently arranged, and the intended object be still produced; but we have given the actual arrangement of a machine which we have essayed, and which has been found to answer well in practice.

When a heddle is to be formed, the end of the wire is turned around the pin *i*, and then by turning the winch E, the whole machine will be carried around, and this may be done as many times as may be required; the wire will be thus wound so as to form the eye-holes at its end. The wire is carried thence around the pin *h*, and back to *i*, around which it is again wound, as before. The studs O, R, S, are embraced between the wires, and by turning the winch L, any degree of twist desired, for forming the loop in the middle of the heddle, will be given to the wire. The manner of forming the ordinary heddle, with a joint, by means of this machine will be perfectly obvious.

Having thus, fully described the nature of our machine for forming wire heddles, and explained the operation thereof, what we claim therein as new, and desire to secure by Letters Patent, is—

1. The manner in which we have combined and arranged the shafts P, and Q, and their respective studs, with the arm N, and its stud; the latter being made to revolve with the pinion M, the shafts and arm being made adjustable, by an arrangement of parts substantially the same with that set forth, and for the purpose described.

2. We also claim the mounting of the above claimed apparatus upon a wheel revolving horizontally, the same being actuated substantially in the manner, and used for the purpose above made known.

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Witnesses:
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BRADLEY TILLINGHAST.