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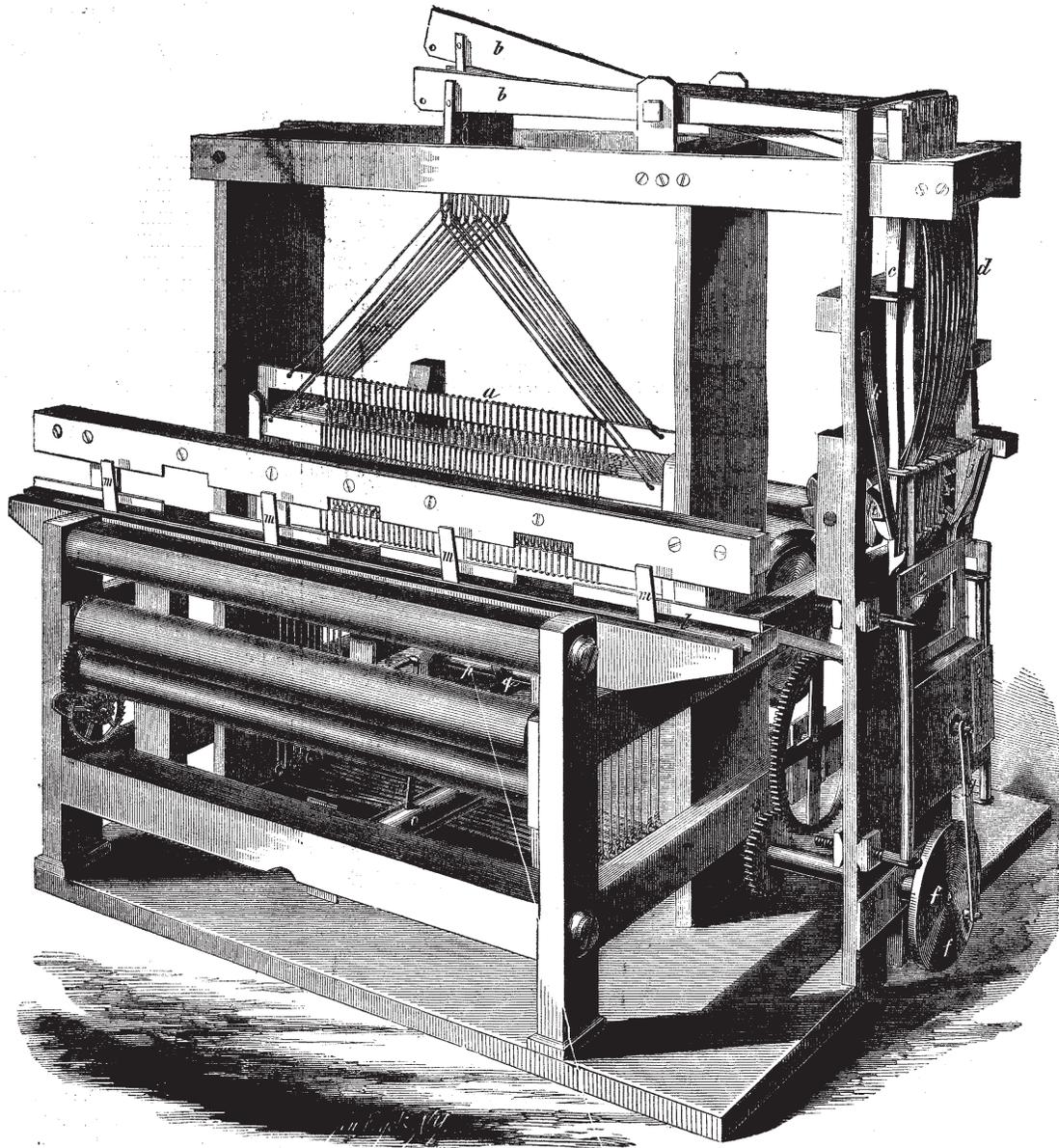
NEW SERIES

## Woolen Belting and its Manufacture.

The loom illustrated by the accompanying engravings is one of those thaumaturgic machines that have the power of accomplishing very various, and apparently impossible results. It will weave two

has ever been seen, or that can be imagined. The principal purpose, however, for which it is used, is the manufacture of woolen belting, an article patented by the inventor of the loom, Joseph H. Clifton, of New Castle, Pa., who believes that wool belting

its structure, and will be easily understood from an examination of the engraving. The harnesses, *a*, through which the warps are drawn, may be of any number desired, from two upward, and they are actuated by the levers or jacks, *b b*, a lever to each harness.



CLIFTON'S LOOM FOR WEAVING BELTING AND OTHER ARTICLES.

seamless sacks, one within the other, at the same time, or one, two or three round, solid cords, or fancy casimere, or plain shirting or sheeting of any width, from a few inches to twelve feet, or wide or narrow sails, or almost any other kind of textile fabric that

manufactured in his loom will inevitably supersede all other kinds of belting which have been hitherto introduced.

Though the loom is capable of producing such a variety of results, it is by no means complicated in

Pendent from the outer ends of the jacks, *b*, are the vertical hooks, *c*, which are pressed back by the springs, *d*, just out of the way of the gate, *e*, that receives a constant reciprocating vertical motion, from its connection with the wheel, *f*, by the rod, *g*.

Behind the hooks, *c*, is placed a horizontal shaft, with the ratchet wheels, *h* and *i*, upon its ends, and with pins radiating from its axis of sufficient length to press the hooks, *c*, outward, within reach of the gate, *e*, so that they may be caught by the gate in its descent. These pins may be inserted or removed at pleasure, and thus any one or more of the hooks may be drawn down at any point, in the rotation of the shaft, lifting, of course, the corresponding harness or harnesses. Thus, by simply arranging these pins, the operation of the harnesses, and, consequently, the structure of the fabric may be regulated at pleasure. The shaft is rotated by the hook, *j*, catching into the ratchet wheel, *i*, this hook receiving its motion from the gate, *e*. The hook, *k*, holds the shaft from turning backward.

The wheel, *f*, is provided with several holes, at different distances from the center, for inserting the crank pin that carries the rod, *g*, for the purpose of regulating the distance to which the harnesses are lifted, according to the fabric that is being woven.

The levers, *b b*, are provided with several holes in their outer ends for connecting the hooks, *c*, and the frame that supports these hooks may be secured at a greater or less distance from the loom frame; by which arrangement the distance to which the harnesses are lifted is also varied at will. If it is desired to raise a portion of the harnesses higher than the others, this is readily accomplished by making the corresponding hooks, *c*, shorter than the other hooks, so that they may be seized by the gate, *e*, at a higher point, and thus be drawn farther down.

The shuttle is driven by the vibrating bar, *l*, which is provided with upright arms, *m m m m*, to drive one, two, or more shuttles, as may be required. The bar, *l*, is operated by the vibrating arm, *n*, of the rock shaft, *o*. Upon the rear end of this shaft is secured a broad plate, immediately beneath the rotating shaft, *p*, which is provided with two cams, (*q*, and another not shown), one upon each side of the rock shaft; and as the shaft, *p*, rotates the cams act alternately upon the plate, rocking the shaft, *o*, and driving the shuttle. The motion of the shuttle is varied at will, to adjust it to cloths of various widths, by fixing the cams at a greater or less distance from the middle of the shaft, *p*.

Practical weavers will understand that these several adjustments enable this loom to be adapted to the production of a very great variety of fabrics. A portion of the warps may be drawn more tightly than others to act as binders to the fabric, the wool may be covered upon the upper or lower side, the shuttle or shuttles may be driven a greater or less distance, and the motions of the warps may be arranged in a great number of combinations; and all these results are accomplished by means of light and simple mechanism.

The "Woolen Water-Proof Belting" to which we have alluded, also invented and patented by Mr. Clifton, and in the manufacture of which it is his intention to make a special and immediate application of the improved loom just described, is claimed by him to possess the following peculiarities and advantages:—

1. The material, which is chiefly wool, has never before been applied in any regularly manufactured belting, but, of necessity, has long been used in a thread-twisted form, by manufacturers, in the driving of spindles.

2. In its very nature it resists atmospheric changes of heat or cold, and will stand a degree of temperature that will burn leather to a crisp.

3. The ready and natural assimilation of the wool to animal oils, increases the protection from decomposition, which, in other manufactured materials for belting generally results from the use of oil.

The surface of the belt is covered with a resinous sizing or yielding cement.

It will thus be seen that the perfect adaptability to the work required of the animal fiber of which the belt is composed, together with the complete mechanical construction which it receives from the improved loom by which it is woven, are elements designed to render this belt for strength, durability and cheapness vastly superior to leather; and, inasmuch as the inherent defects which belong to the leather do not attach to the woolen belt, and, also, in view of the fact that the woolen can be made at from one-third to one-half less cost than the leather belt is

made, Mr. Clifton is firmly convinced that his belt will eventually take the place of leather.

Patents on the loom and belting for England, France and Belgium having been secured, the owners are anxious for the effective development of the manufacture and sale of both the loom and belting in these countries, and, to this end, are willing to place them at the disposal of competent parties, on reasonable terms.

Communications may be addressed to Joseph H. Clifton or George Cheesman Morgan, at New Castle, Pa., and to Daniel Euwer, of Pittsburgh, Pa.