

MACHINE FOR SEWING LININGS IN HAT BODIES.

The machine represented in the accompanying engraving is for sewing linings or sweat bands into hat bodies. In arranging the sweat band and the hat on the arched bed plate of the sewing machine, the bed plate extends a short distance within the hat body, which hangs upon it, with the hat rim projecting upward in the rear of the presser. The sweat band, having its outer side uppermost, rests upon the plate with the binding projecting within the body, and going under and against the lip of a guide fixed upon the arched bed. One part of the lining extends underneath the longer arm of a guide lever fulcrumed to a movable plate fastened on the bed plate by a clamp screw. Pivoted to the rear arm of this lever is a cam lever, which, when turned against the movable plate, forces the opposite arm down upon the rear part of the lining; it also serves as an additional guide for the sweat band. The hat extends over the top of a feeder working through a slot in the bed plate. The machine is of the class that forms what is termed "chain stitch," sewing by means of a single thread, the mechanism for operating the needle and presser being such as commonly used in sewing machines of this kind. After the sweat band has been stitched to the hat and the latter removed, the band or lining is folded back within the hat body. The front guide fixed to the arched bed plate extends upward, and is provided with a guide lip to project from the inner edge of the guide over the binding of the sweat band and against that part which encompasses the rattan strip. This guide may be fastened to the movable plate, which would then be extended forward to the front end of the bed plate.

This mechanism is not for sewing a sweat lining and hat band to the body of a hat by one line of stitching, but is to fasten to the body a sweat lining of peculiar description. The lining is composed of a round strip of rattan or whalebone, a binding strip of glazed cloth or leather folded along its middle and about the rattan strip, and a broad piece of leather laid on the binding strip, to which it is connected by sewing going through both and alongside of the strip of rattan.

Paper and cloth linings can be sewed in with the machine as well as stitched, reeded, and raw edge leathers, and the machine will work equally well on any grade of straw, felt, or any other kind of hat. It is claimed that from seventy-five to one hundred dozen linings can be put in in a day of ten hours, according to the skill of the operator.

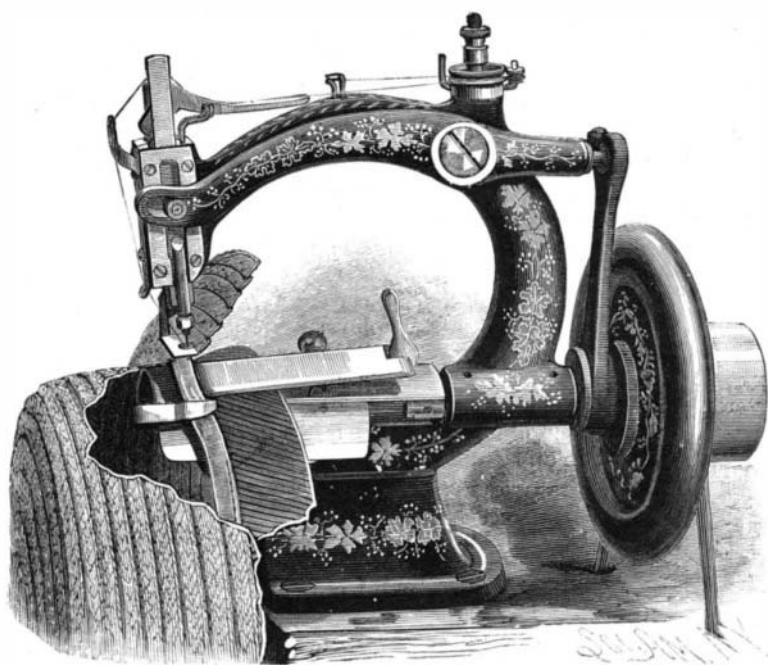
Further information regarding this machine can be obtained by addressing either the inventor, Mr. J. A. Locke, or Mr. B. H. Spaulding, both of Milford, Mass.

The Defenses of Holland.

A considerable sum is to be spent this year in completing the defenses of Holland. The system which has been adopted is peculiar, but is apparently well adapted to the characteristics of the country in which it is being carried out. While other nations, when invasion threatens, mobilize their armies, in Holland the order will be given for the "mobilization of the waters." When this operation is effected, a watery line from five to ten miles wide and some sixty miles long will be created, directly barring the advance of an invader coming from the east. Above the surface of inundation nothing will be visible but a few narrow roads raised on embankments, enfiladed by fortifications bristling with cannon. The water for the most part will be only a few inches deep, so that it will not be navigable by hostile gun vessels or flotillas; while deep trenches cut in the ground below will frustrate any attempt to wade through the inundation. The contingency of an invasion taking place in the winter, when the waters might be frozen over, is ingeniously provided for. The depth of the inundation will then be increased, and the waters allowed to freeze on the surface. The water below will afterward be drained off, leaving the crust of ice suspended, and ready to break in under the weight of the first troops who attempt to cross it.—*St. James's Gazette.*

A Large Photograph.

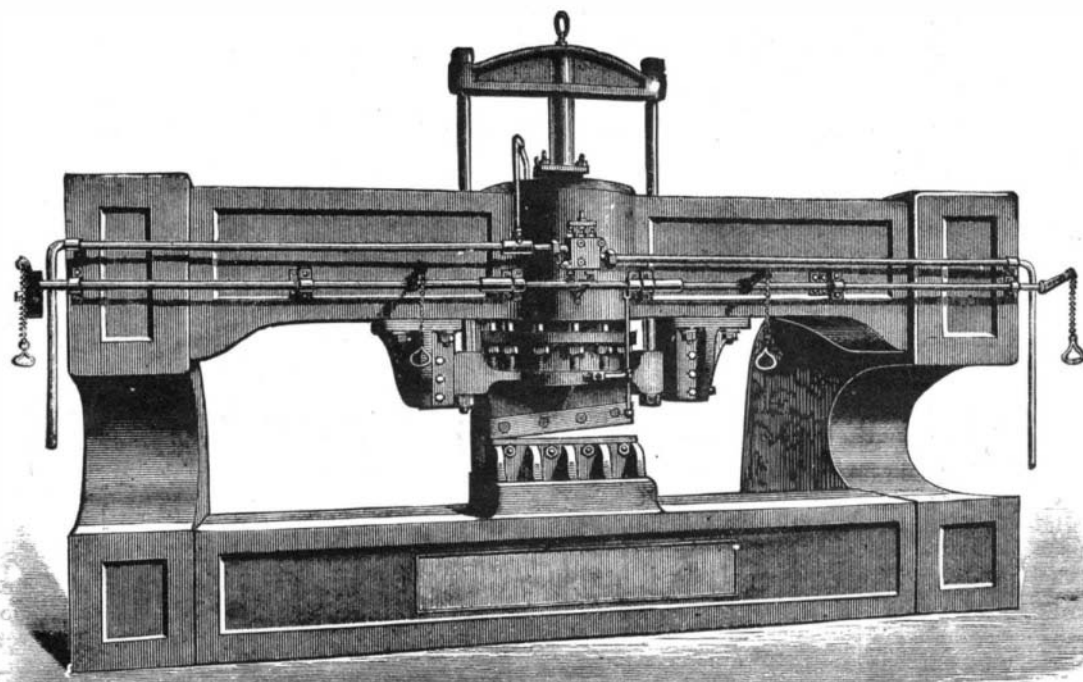
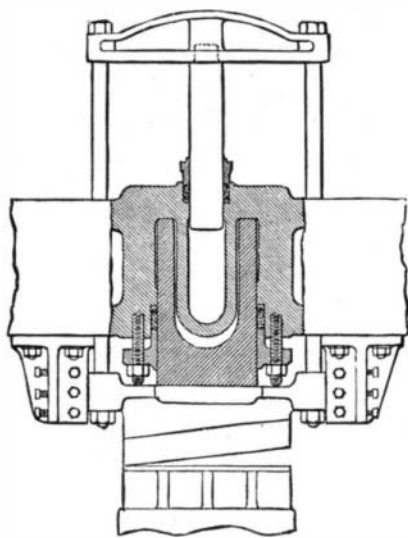
In the studio of Mr. D. J. Anderson, photographer, 785 Broadway, New York, is now on exhibition a photograph, which is 7 x 12 feet, and is a view of the interior of the 7th Regiment Armory, on the floor of which

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are grouped 800 full length figures, members of the regiment. It is a composition picture, each figure having been a separate study. It has occupied Mr. Anderson's time for the past sixteen months. Among those occupying positions as spectators are many well known in the civil and military world, including Grant, Arthur, Cleveland, Blaine, and others.

IMPROVED HYDRAULIC SHEARING MACHINE.

The illustrations represent a new form of hydraulic shearing machine, designed and constructed by Anderson & Gallwey, of Cremorne Works, Chelsea, for the

**IMPROVED HYDRAULIC SHEARING MACHINE.**

rolling mills of Josse Goffin & Co., of Clabecq, Belgium. The machine is designed, says *Engineering*, to cut plates of $1\frac{1}{2}$ inches thick, and by the arrangement of the framework, plates of great width and of unlimited length can be operated upon. For this purpose the frame is formed of two horizontal cast iron girders let into two end castings, between which a distance of 11 feet 16 inches has been allowed. The main cylinder, which is shown in action in the detail view, is cast in one with the top girder, and is bored out to receive the ram, which is secured to a crosshead carrying a shear blade and sliding in guides.

The ram is U-shaped in longitudinal section, in order to allow a second cylinder to enter the hollow thus formed. This latter cylinder receives the "drawback" ram, the upper end of which is fixed in a small crosshead rigidly connected with the crosshead carrying the blade, by means of two tie rods. The smaller ram is always in direct communication with the pressure water, and is therefore continually tending to draw the upper shearing blade away from the lower fixed blade. The pressure water is admitted to the larger ram, and exhausted therefrom, through two miter valves, the spindles of which pass right through the valve box. These valves are forced down on their seat by the combined action of the pressure of the water and of two spiral springs. The lower ends of the spindles bear on two eccentrics on a shaft running the whole length of the machine, and to this shaft levers for operating the valves are attached at intervals. The levers are connected by means of chains with hand rings in the way shown, and as they can be shifted to any position on the longitudinal rod, the machine can be worked from any point in its length. Upon pulling one of the chains, the eccentrics on the shaft open the pressure valve and close the exhaust.

When the ram has completed its stroke, a counterweight on the shaft brings the eccentrics into their former position, closing the pressure valve and opening the exhaust, when the pressure on the smaller ram draws the crosshead and the upper blade back. The machine is also provided with automatic tappet gear, by means of which the stroke of the ram can be adjusted to any length between $\frac{1}{8}$ inch and 6 inches; the consumption of water being in direct proportion to the length of stroke.

Although the shears have to cut very wide plates, the length of the blades is only 2 feet 6 inches; this gives greater facility in straight cutting and also allows a curved line to be followed.

Fiber in Nails.

Unless cut nails are made from better material than is used generally now, their place in the market will be usurped by nails made from fibrous material. Wire nails are very favorably regarded, and are used in preference to cut nails on account of their superior tenacity, notwithstanding superior cost. The iron for cut nails, after being rolled, is slitted or cut lengthwise to a width adapted to the length of the nail to be cut. The length of the nails so cut is directly across the fiber which the iron has acquired by rolling, and, of course, shows its weakest where it should be the strongest. The ordinary cut nails will not drive into seasoned hard wood without "crippling," even under direct blows, and when the blow of the hammer is slightly on one side, they snap like clay pipe stems—they have no tenacity. The weakness of these nails is shown by the fact that it is almost impossible to straighten one that has been drawn from the wood, and then drive it again; in many or most instances, the nail will break in drawing.

On the contrary, the wire nails may be crooked into corkscrews, and then be straightened and be re-driven. They are not only tough, but they are stiff, and will penetrate hard wood where the cut nail would break sharply off or hopelessly crook beyond restraighening. In every respect the fibrous nail is better than the crosscut nail. If it could be afforded at the same or an approximate price, it would take the place of the ordinary cut nail.