

1,057,346.

T. H. HYDE.
LATH MACHINE.
APPLICATION FILED MAY 10, 1912.

Patented Mar. 25, 1913.

3 SHEETS-SHEET 1.

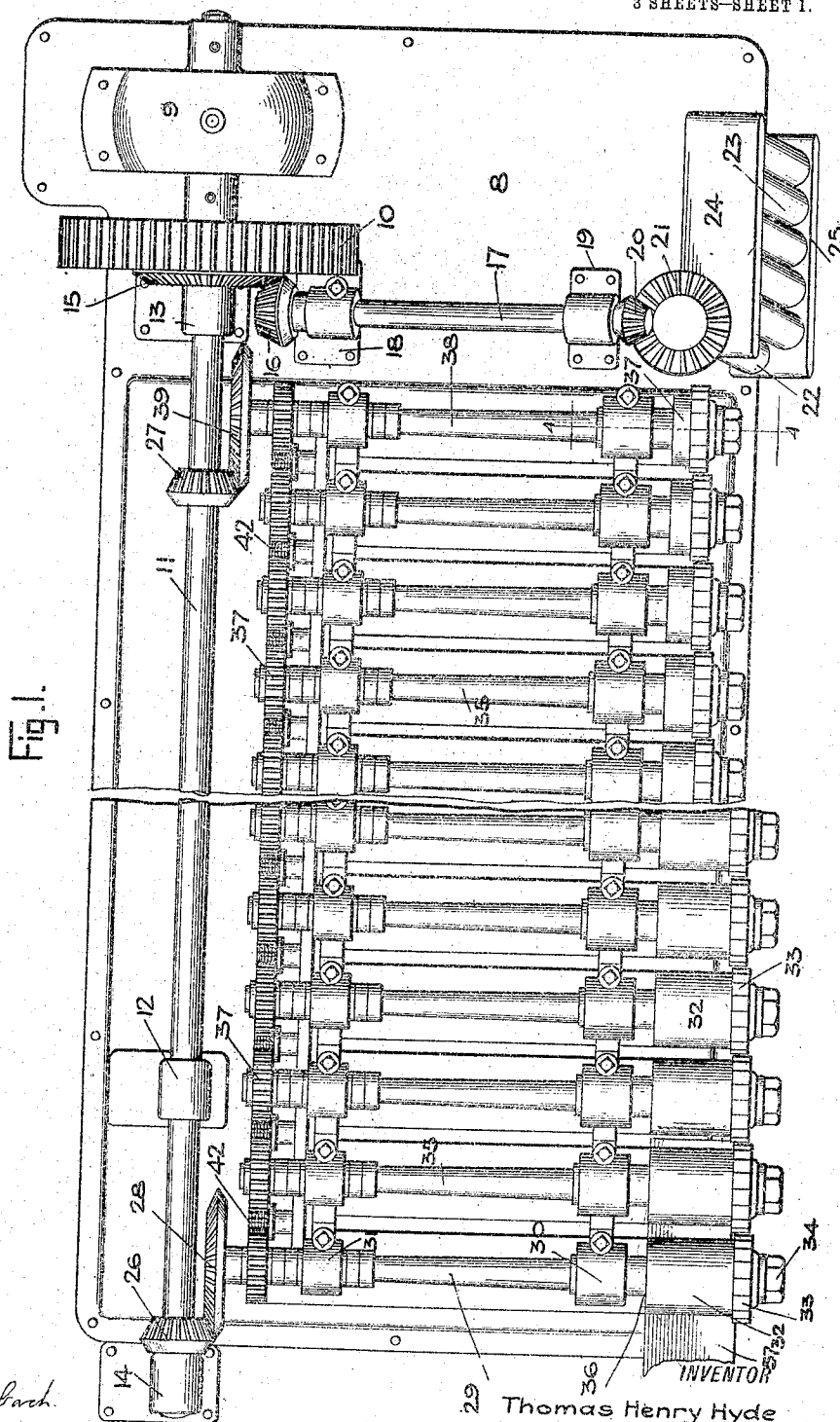


Fig. 1.

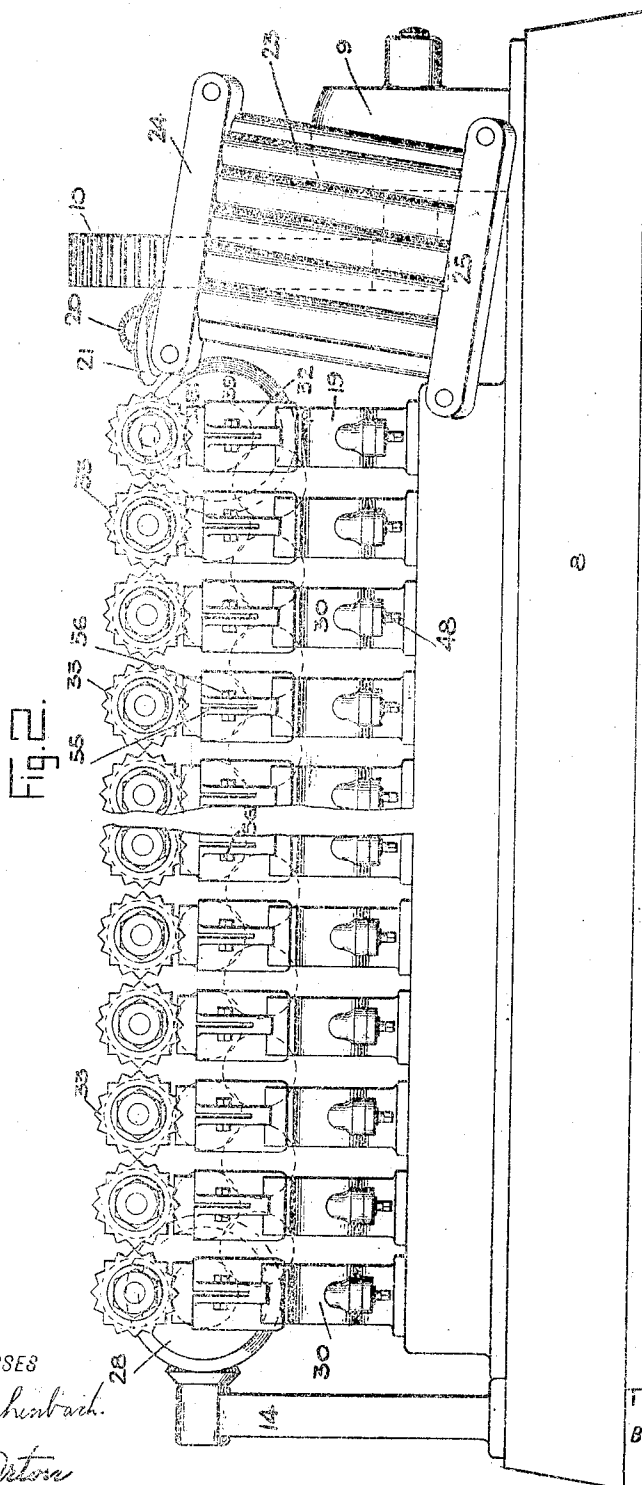
WITNESSES
G. H. Reichinbach
Wes. Ostrom

INVENTOR
Thomas Henry Hyde
BY *Wm. L. Co.*
ATTORNEYS

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WITNESSES
C. F. Reichert
H. S. Oster

INVENTOR
Thomas Henry Hyde
BY *Wm. Co.*
ATTORNEYS

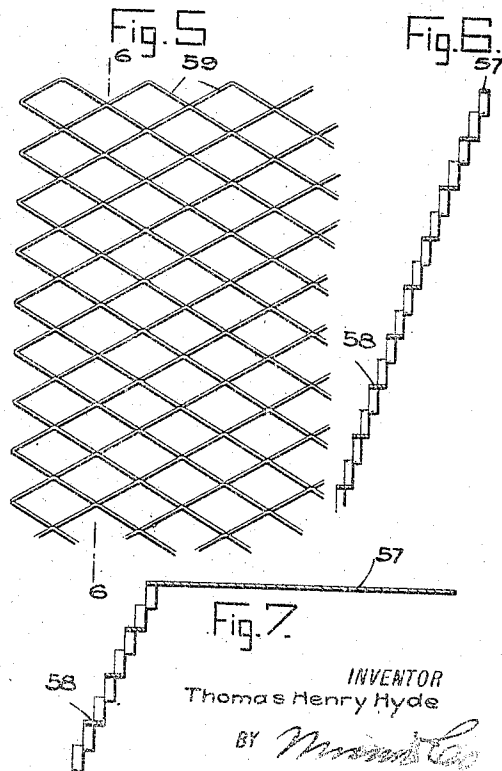
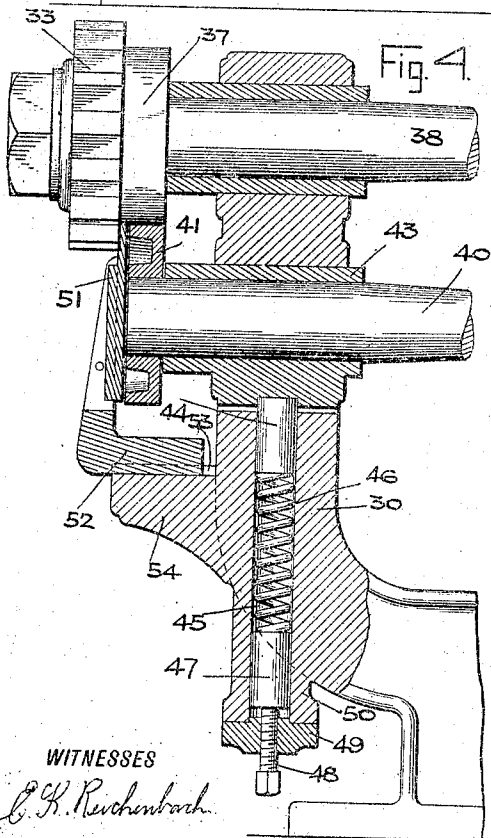
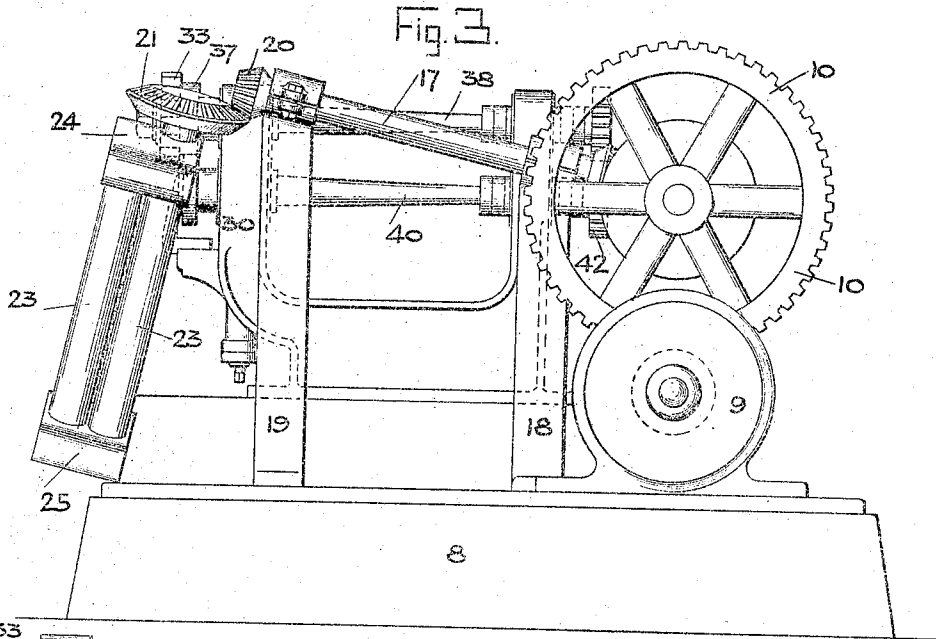
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3 SHEETS-SHEET 3.

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WITNESSES
C. K. Reichenbach
H. S. Orton.

INVENTOR
Thomas Henry Hyde

BY *Miner Co.*

UNITED STATES PATENT OFFICE.

THOMAS HENRY HYDE, OF NEW KENSINGTON, PENNSYLVANIA.

LATH-MACHINE.

1,057,346.

Specification of Letters Patent.

Patented Mar. 25, 1913.

Application filed May 10, 1912. Serial No. 696,436.

To all whom it may concern:

Be it known that I, THOMAS HENRY HYDE, a citizen of the United States, and a resident of New Kensington, in the county of Westmoreland and State of Pennsylvania, have invented a new and Improved Lath-Machine, of which the following is a full, clear, and exact description.

My invention relates to machines for expanding sheet metal into an open-work fabric. The present forms of machines of this character are objectionable in that they are formed of a large number of parts which are quite apt to get out of order and the replacing of which parts is difficult and expensive.

An object of my invention is to provide a lath machine of a simplified construction, affording ready access to the several parts, and which is of an open type so that the work will not become jammed between the parts of the machine.

A further object of my invention is to provide a lath machine in which the cut finished fabric is flattened before it is delivered.

I attain the above outlined objects by running the sheet metal between a series of pairs of rollers, the sheet being cut progressively from one edge by cutters carried in juxtaposition to said rollers and the cut fabric finally fed between straightening rollers to remove all kinks and bucklings from the fabric.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which—

Figure 1 is a plan view looking down upon a preferred embodiment of my invention; Fig. 2 is a side elevation of the same looking up from the bottom of Fig. 1; Fig. 3 is an end elevation of the machine looking from the right-hand side of Figs. 1 and 2; Fig. 4 is an enlarged detail vertical sectional view through the last series of rollers and cutters and taken on the line 4—4 of Fig. 1 looking in the direction of the arrow; Fig. 5 is a plan view of the finished fabric; Fig. 6 is a transverse sectional view through the same and as shown, taken on the line 6—6 of Fig. 5, and Fig. 7 is a view similar to Fig. 6 showing a portion of the unfinished fabric and showing part of the unperforated plate in section.

In the several figures I have shown a suitable base 8, and mounted upon this base or bed, at any corner thereof, is an electric motor or other prime mover 9 actuating a large gear wheel 10, which gear wheel is rigidly mounted upon a shaft 11 extending longitudinally of the base 8 and suitably mounted in journal brackets 12, 13 and 14. Also mounted on the shaft 11 and preferably forming one face of the gear 10, is a bevel gear 15 meshing with a bevel pinion 16 mounted on one end of a transversely disposed shaft 17, which shaft is suitably mounted in spaced-apart journal standards 18 and 19 and terminates in a bevel pinion 20, which bevel pinion in turn meshes with a bevel gear 21. This bevel gear 21 forms the upper end of the first roller 22 of a series of parallelly disposed rollers 23, which rollers 23 have their opposite ends journaled in bearing plates 24 and 25, said rollers and bearing plates forming a roller mechanism for removing the kinks and irregularities from the cut fabric hereinafter described. The rollers 23 are inclined in three planes, so as to be in position to receive the substantially vertically disposed finished fabric as it leaves the cutting mechanism of the machine. Also mounted upon the shaft 11 is a pair of spaced-apart bevel gears 26 and 27, the bevel gear 26 being positioned adjacent the journal bracket 14 and meshing with a bevel gear 28 mounted upon an upper shaft 29, which shaft extends transversely across the bed and is suitably supported by a pair of spaced-apart brackets 30 and 31. The end of the shaft, opposite the end carrying the gear 28, is enlarged to form an upper bearing drum 32, abutting the outer end of which drum is a cutter 33 held in place by a jam nut 34. Disposed parallel to the shaft 29 and in a horizontal plane with this shaft, is a series of similarly shaped shafts 35, each shaft being mounted on an independent bracket resembling the brackets 30 and 31, and each succeeding drum being of less width than the preceding drum, and the inner edges 36 of the drums being in alignment, so as to afford a gage for the inner edge of the work 37, the last drum 37 adjacent the roller 22 being of the least width. By this construction it will be seen that each of the cutters 33 is inset from the preceding cutter a distance equal to the desired width of each strand of the finished material.

While each of the shafts 35 may be driven direct from the shaft 11, preferably there is mounted on the end of each of the shafts 35 opposite the end carrying the drum, a gear 37 forming with the idler gears 42, a train of gears between the shaft 29 on one end and the driven shaft 38 on the other end, which shaft 38 is connected by a bevel gear 39 to the bevel gear 27 hereinbefore mentioned. Disposed below the several shafts 29, 38 and 35, is a lower roller shaft 40, mounted in the brackets 30 and 31, and having one end terminating in a lower roller 41 coacting with the upper roller 37 to feed the material through the machine. The roller 41 is maintained in resilient engagement with the roller 37 by supporting the bearing 43 carrying the shaft 40 upon a pin 44 disposed in a recess 45 in the bracket 30 and held in raised position by a compression spring 46, which compression spring is supported upon a lower pin 47, said lower pin being in turn supported and regulated by a regulation screw 48 carried by a plate 49 forming the bottom of a projection 50 extending downwardly from the bracket 30. The rotating cutter 33 coacts with a stationary cutter 51 mounted in an L-shaped carriage 52, which carriage has a horizontal arm slidably mounted on the track 53 formed on the upper face of an extension 54 from the face of the bracket 30. In order to grip the cutter 51, the front face of the bracket 52 has a horizontally-disposed slit 55 therein, which slit is closed by means of a jam nut 56.

As shown in Fig. 1, the work in the form of a long narrow metal sheet or plate 57, hereinbefore mentioned, is inserted between the two largest rollers 32 and 41, and a narrow short strip of metal is cut and bent downward from the plate of the sheet by the shearing of the cutter 33 relative to the stationary cutter 51, as shown more particularly in Fig. 7. This cut forms one-half of the diamond shown in Fig. 5. The material is fed on between the next adjacent rollers and as the cutter coacting with these adjacent rollers is in-set, this next adjacent cutter and all succeeding cutters in order will slit and bend down the next adjacent portion of material to form the coacting half of the previously formed half-diamond sheared by the preceding cutter in the series, and so on, each succeeding cutter shearing the in-cut metal sheet to form the coacting portion of the half of the diamond previously formed, and at the same time forming one-half of the next succeeding diamond. The tendency of this successive cutting and bending down is to turn the metal from the horizontal position in which it is fed into the machine into a more or less vertically inclined fabric, as shown in Figs. 5 and 6. The finished fabric is fed on be-

tween the rollers 23 to press out of the fabric all kinks and irregularities formed therein.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A lath machine comprising a series of cutting members, each succeeding member being inset from the previous member, said cutting members each comprising a rotating member and a coacting stationary member, rollers coacting with said cutting members to feed the work therethrough, and means for maintaining one of said rollers in resilient engagement with the other roller.

2. In a lath machine, an upper shaft, a roller carried by said upper shaft, a rotary cutting member removably positioned on said shaft adjacent said roller, a lower shaft, a roller carried by said lower shaft adapted to coact with said upper roller to feed the work to said cutting member, and means for maintaining the lower roller in resilient engagement with the upper roller.

3. In a lath machine, an upper shaft, a roller carried by said upper shaft, a rotary cutting member removably positioned on said shaft adjacent said roller, a lower shaft, a roller carried by said lower shaft adapted to coact with said upper roller to feed the work to said cutting member, a bracket, a carriage mounted on said bracket, and a stationary cutting member mounted on said carriage and coacting with said rotary cutting member.

4. In a lath machine, an upper shaft, a roller carried by said upper shaft, a rotary cutting member removably positioned on said shaft adjacent said roller, a lower shaft, a roller carried by said lower shaft adapted to coact with said upper roller to feed the work to said cutting member, a bearing for said lower shaft, a bracket, and means carried by said bracket and engaging the said bearing to maintain the lower roller in resilient engagement with the upper roller, and a gear forming part of a train to drive said upper shaft.

5. In a lath machine, an upper shaft, a roller carried by said upper shaft at one end thereof, a rotary cutting member on said shaft adjacent said roller, a lower shaft terminating at one end in a roller coacting with the upper roller, and means for maintaining the lower roller in resilient engagement with the upper roller, the said means comprising a bearing for said lower shaft, a bracket, a pin disposed in a recess in said bracket and supporting said bearing, a compression spring in said recess for holding said pin in raised position, a lower pin on which said compression spring is supported, and an adjusting device for the said lower pin.

6. In a lath machine, a series of upper

shafts, rollers carried by said shafts at one end thereof and having the inner end of each in a common plane, each roller being of a uniformly less width than the preceding roller, rotary cutting members facing the outer disalined ends of said rollers whereby when material is fed by said rollers with one edge thereof in said common plane, said cutters will progressively act on said material transversely of the same, a series of lower shafts each having one end terminating in a roller coacting with one of said upper rollers, a series of brackets each having a guideway, carriages engaging said guideways, and cutters coacting with the rotary cutters and mounted in said carriages.

7. A lath machine, comprising a series of rotary cutting members, stationary cutting members coacting with the rotary members, carriages in which the stationary cutters are mounted, the carriages having horizontal members, and tracks on which the said horizontal members are slidingly mounted.

8. A lath machine, comprising a series of rotary cutting members, stationary cutting members coacting with the rotary members, carriages each having a vertical member and a horizontal arm, the stationary cutting members being mounted in the vertical members of said carriages, and tracks on which the

horizontal arms of the carriages are slidingly mounted.

9. In a lath machine, in combination with cutting and bending members, a roller mechanism adapted to straighten the lath after the same has been formed by the cutting members, the said roller mechanism comprising a series of inclined rollers, and bearing plates in which the opposite ends of said rollers are journaled.

10. In a lath machine, in combination with cutting and bending members, a roller mechanism adapted to straighten the lath after the same has been formed by the cutting members, the said roller mechanism comprising a shaft extending transversely of the machine, and terminating in a bevel pinion, a series of inclined rollers, bearing plates in which the opposite ends of the rollers are journaled, a bevel gear on the upper end of the first roller of the series, and meshing with the bevel pinion of said shaft, and means for turning the said shaft.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS HENRY HYDE.

Witnesses:

R. G. SHEPARD,
M. H. ZINKAND.