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Cops, Butts, Bobbins, Quills or Tubes, for any kind of yarn used in weaving, from the coarsest burlap to finest silk goods.

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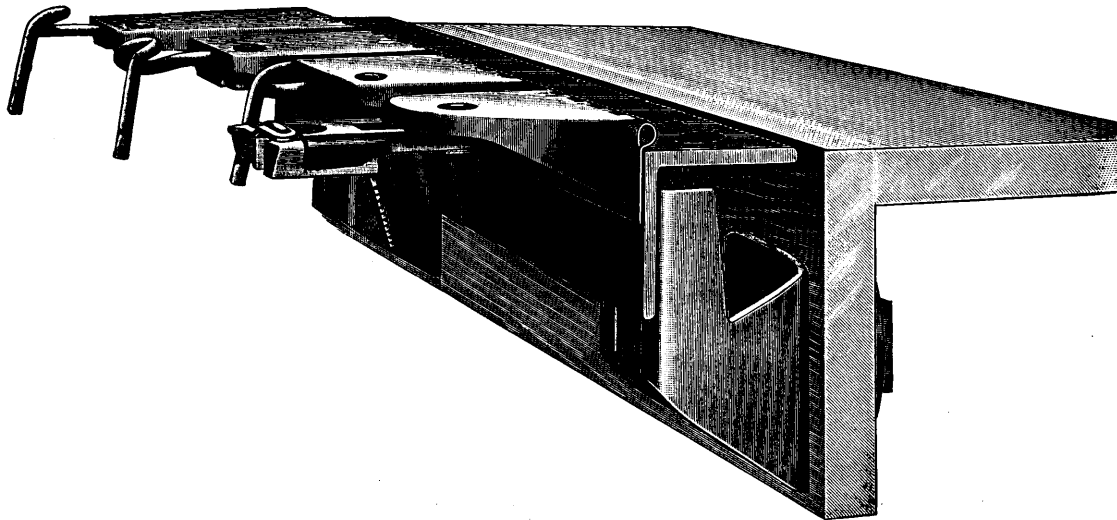
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The only Thread Board that holds a Thread Guide solid all the time.

The guides never get loose,

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Saves waste and care, and the rings wear longer.

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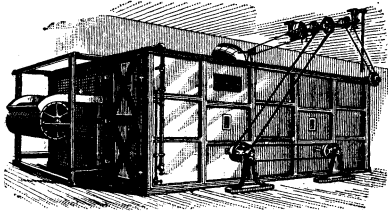
For a description of this Thread Board, etc., see pages 101, 102, 103 and 104.

L. T. HOUGHTON, - WORCESTER, MASS.

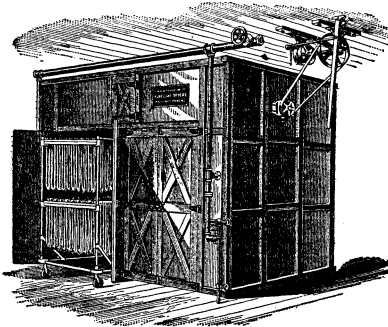
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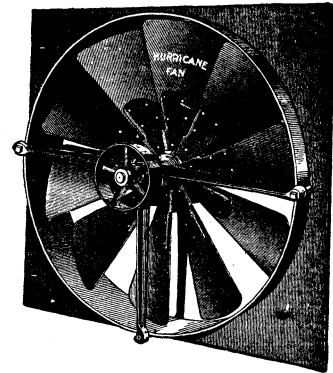


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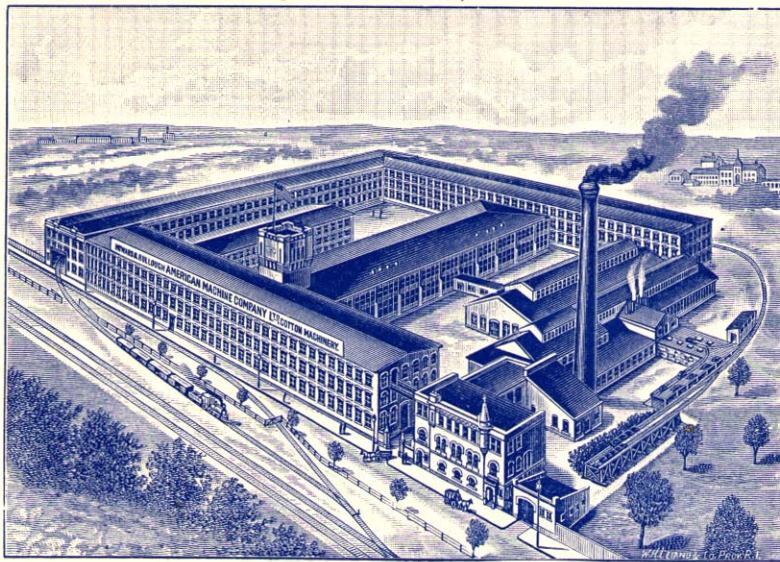
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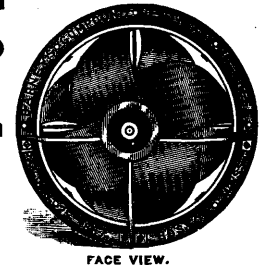
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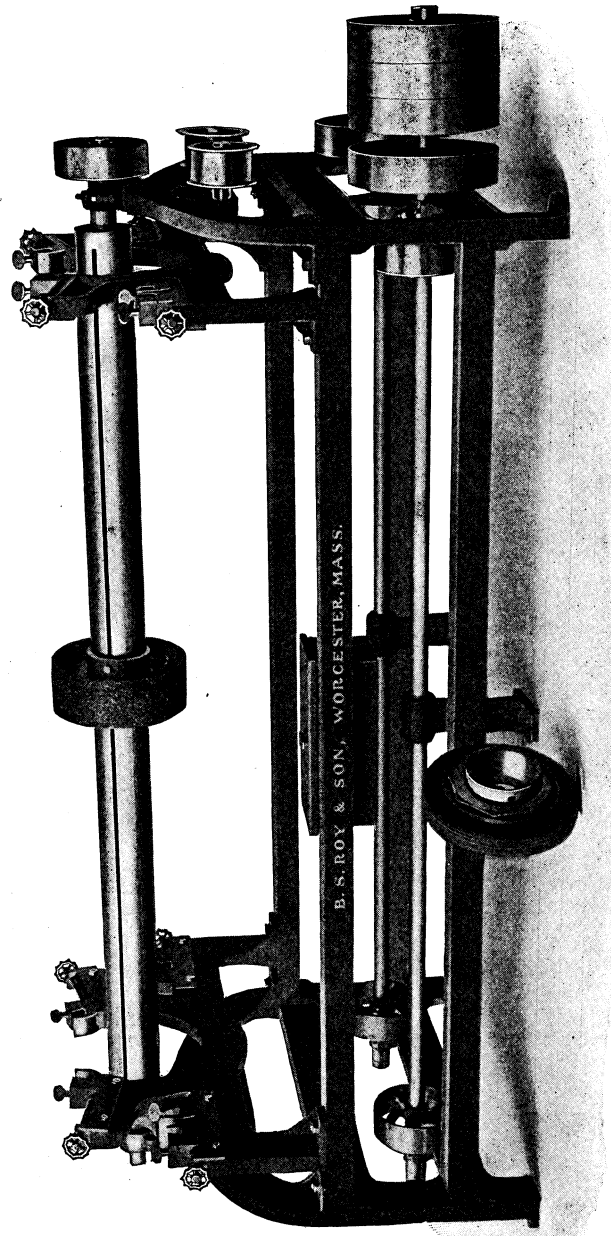
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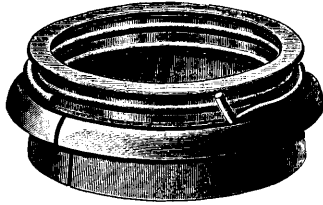
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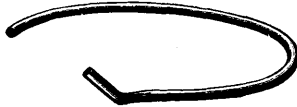
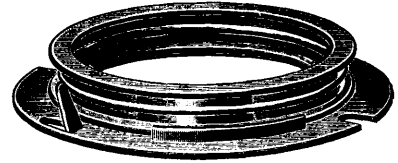
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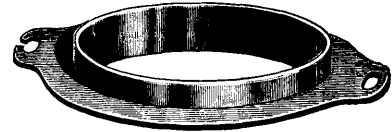
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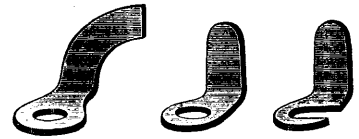
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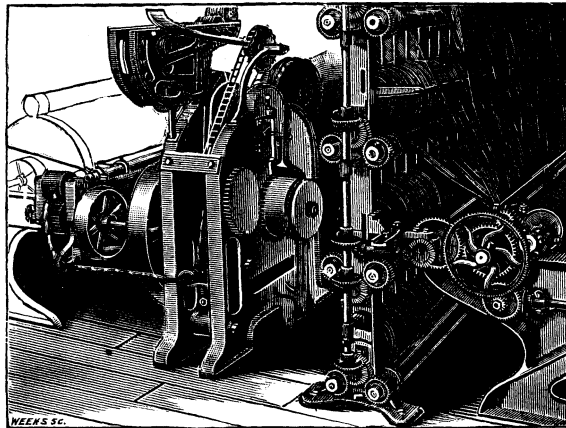
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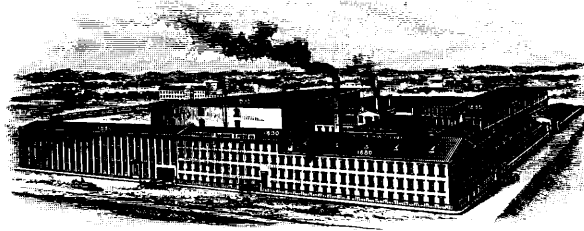
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The Purpose of Wear that the Fabric will be Subject to—The Nature of Raw Materials—Counts of Yarn Required to Produce a Perfect Structure of Cloth—To Find the Diameter of a Thread by Means of a Given Diameter of Another Count of Yarn—To Find the Counts of Yarn Required for a Given Warp Texture by Means of a Known Warp Texture with the Respective Counts of the Yarn Given—Influence of the Twist of Yarns upon the Texture of a Cloth—To Find the Amount of Twist Required for a Yarn if the Counts and Twist of a Yarn of the Same System, but of Different Counts, are Known—Influence of the Weave upon the Texture of a Fabric—To Find the Texture of a Cloth—To Change the Texture for Given Counts of Yarn from one Weave to Another—To Change the Weight of a Fabric without Influencing its General Appearance—To Find Number of Ends Per Inch in Required Cloth—Weaves which will Work with the Same Texture as the $\frac{2}{2}$ Twill—Weaves which will Work with the Same Texture as the $\frac{1}{3}$, $\frac{4}{7}$, etc., Twill—Selections of the Proper Texture for Fabrics Interlaced with Satin Weaves—Rib Weaves—Corkscrew Weaves—Two Systems Filling and One System Warp—Two Systems Warp and One System Filling—Two Systems Warp and Two Systems Filling.

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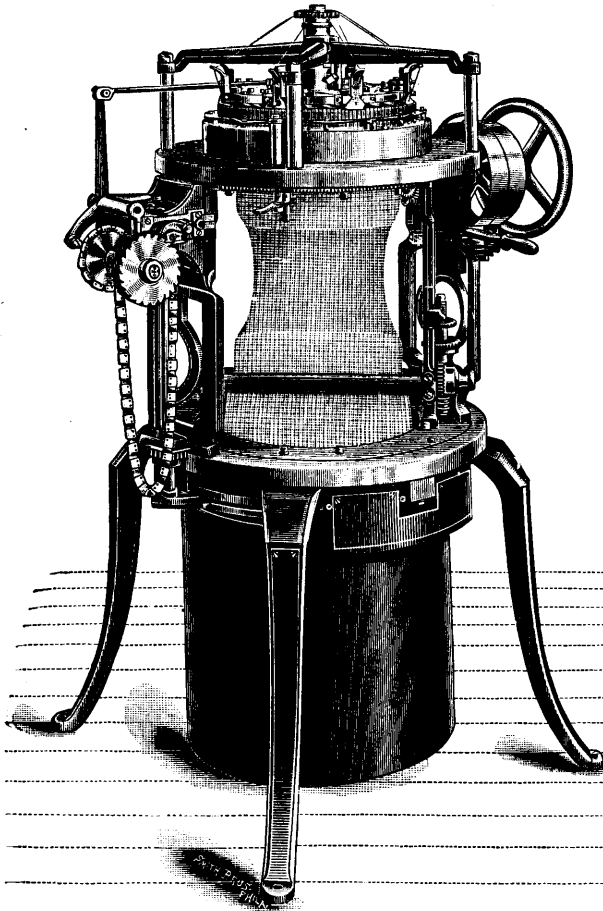
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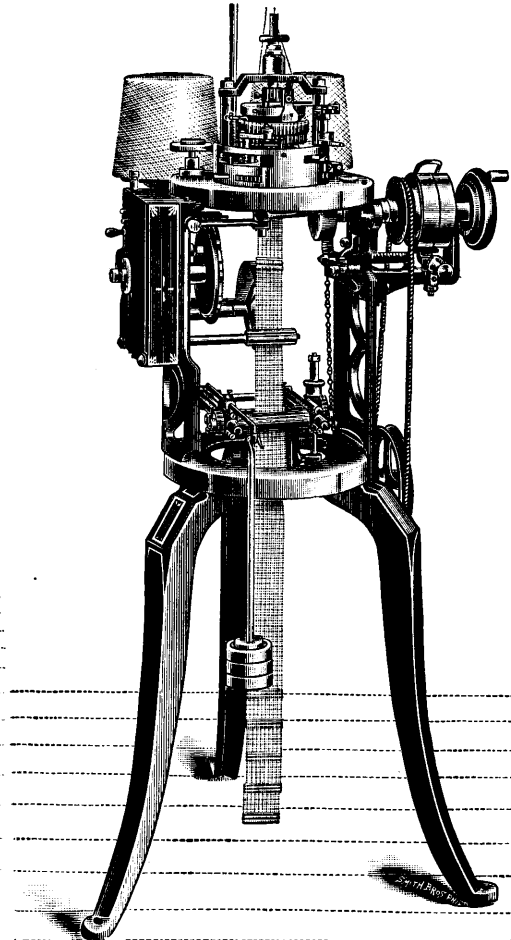
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TO THE KNIT GOODS MANUFACTURERS.



YOU WILL certainly do your best to give **entire satisfaction to your customers**, that **they might keep you busy for the following years**. You want to manufacture **high-grade goods**, produce in **large quantities** and at **cheap rates**, that you might get good benefit out of same, without raising your prices to a forbidding point.

All this is only possible if you have an **up-to-date plant**; you can do it only on **first-class** and **improved machinery**.

Are you better off than your competitor, is your plant fitted to do the work well? If not you have to consider and make **at once** the necessary improvements. The longer you wait, the harder it will be. Your competitors will find out the weak points of **your** manufacturing system, will attack and beat you there, and have **the best of you** in the struggle for orders. **This concerns you.**

If you intend to enlarge and improve your plant, to invest new capital in machinery, do not waste it, invest. To enable you to do so you will have to buy the **best machines** in the market, as the best only is the cheapest; you will have to get the **most improved** machines and from a manufacturer who has a reputation in the country and takes care

to keep the same. He will **give** you the advantages of a **long and expensive experience free** to you in providing you with machines for most regular goods, with **largest production** for first-class work.

Now-a-days the mechanical work spares capital, spares wages; give the engineer a chance to put you in position to save your capital in reducing your manufacturing expenses.

Consider carefully all the necessities of your plant and your line of business; if your order is ready, see that the machines you are going to buy will respond to the following capital points:

- I. Are they **built well, strong enough** and of **selected materials**; will they not be subject to **rapid** wearing out and **expensive repairs**?
- II. Are all your needs **considered**, can the machines be operated by workmen without special training?
- III. Can the machines be used **with advantage** for other articles, if the selling of the goods you actually make will **drop**, and the market opens for new styles?
- IV. Are the movements of the machines so **independent** that **any combination** of same for various patterns, etc., **will be possible**?
- V. Are the parts, cams, etc., **interchangeable**, and can you get same at once if you need any, or will you be compelled to **stop** your machines **for weeks** until they can undergo repairs?
- VI. Will there be an experienced man to help you out of trouble if your own employee cannot go further?
- VII. Will the factory building the machines be able to deliver same in time for the season?

Before ordering the machines, let them undergo **this examination**.

In buying a "**GROSSER**" Machine, you are sure **not** to be disappointed; it **will be** what it is **sold** for, **make** what it is **claimed to do**.

Different machines can be seen **in operation**, in factories and show-rooms. **Large stock in hand** and **full automatic power machines**. **All parts, needles, etc., always kept on hand**. Engineers and machinists at the disposition of the buyer.

See advertisement on next page.

The Grosser Knitting Machine Co.

WOOL EXCHANGE BUILDING.

Room 400.

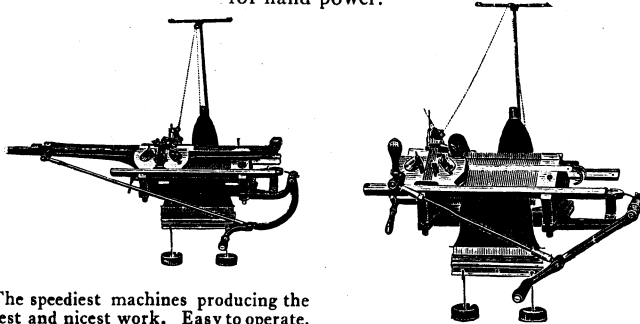
Telephone Franklin 4200.

MAX NYDEGGER

260 WEST BROADWAY

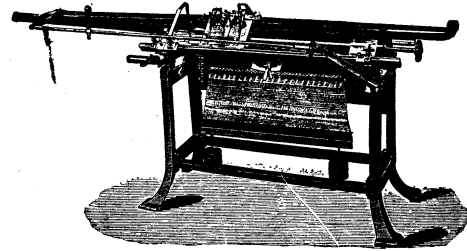
NEW YORK

The "Grosser" Patent Flat Knitting Machines
for hand power.



The speediest machines producing the best and nicest work. Easy to operate.

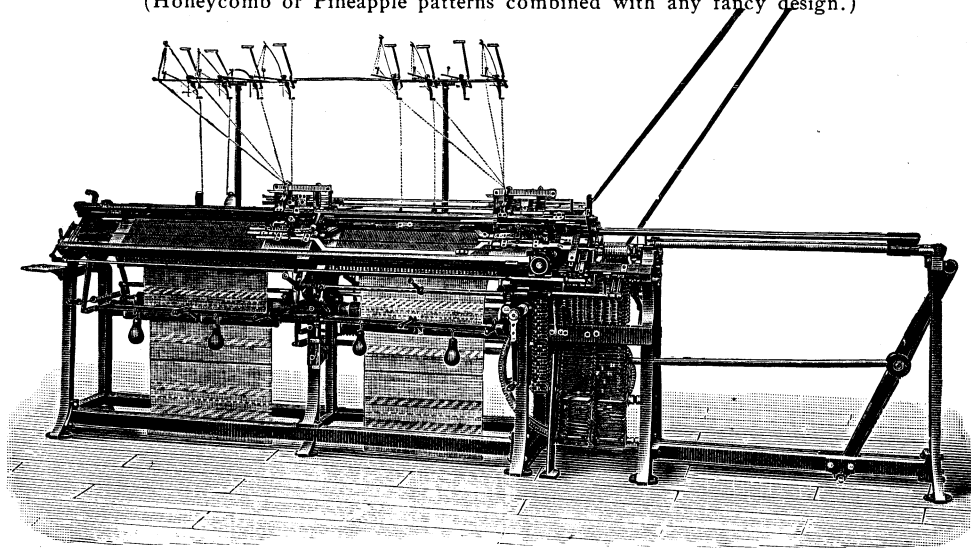
The "Grosser" Fancy Jacquard Machines
for hand power.



The best for fancy work. Pineapple and Honeycomb, color effects. Unlimited variety in pattern.

The "Grosser" Machines will help you more than any other to make a real success in the knit goods line. **Large production, irreproachable work and high grade goods** recommend these latch needle flat knitting machines. Special constructions for all purposes in flat and circular work for plain and fancy goods. Machines to be operated by hand power or steam.

The "Grosser" Jacquard Power Machine M. M. G., 2 sections.
(Honeycomb or Pineapple patterns combined with any fancy design.)



Absolutely automatic in all movements.
Reliable in its work and regularity.

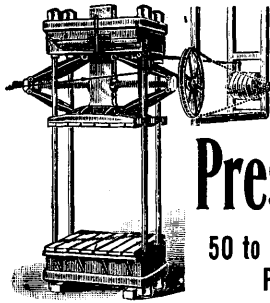
Dependent or independent heads.
Latest improvements, largest production.

Practically unlimited in variety of patterns.

All kinds of **full automatic flat knitting machines operated by power** for plain and circular work, (Sweaters, Jackets, Ladies' Blouses, Sporting and Athletic Goods, Union Suits, Rib Caps, Gloves, Stockings, etc., etc.) **Full fashioning machines** (automatic widening) for pants, sleeves, etc., in **flat** and **circular work**. **Absolutely independent heads**, latest improvements. Selected materials, best construction, long experience, skilled workmen. Interchangeable parts.

Largest and best assorted Stock in all special machines, needles, parts and supplies. Lowest prices, easy terms, prompt delivery. Write for catalogue and all particulars.

Large show room. Machines to be seen in operation. Samples at your disposition.



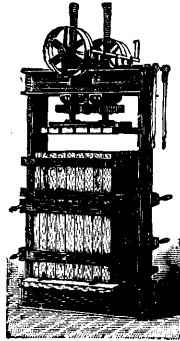
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Power Screw and
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Presses.

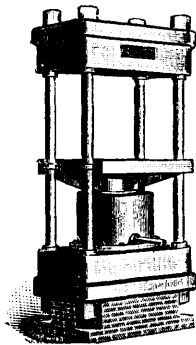
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Power

FOR
COTTON MILLS,
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Fibre Roving Cans.

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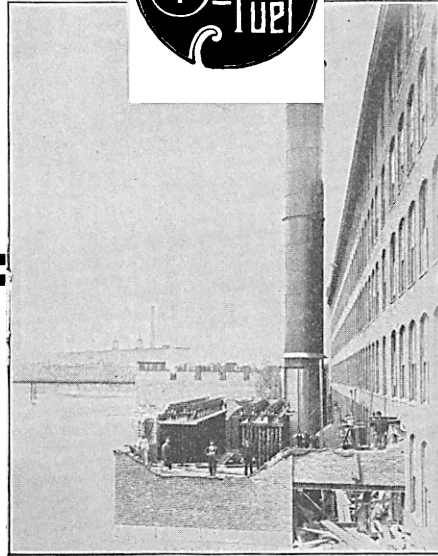
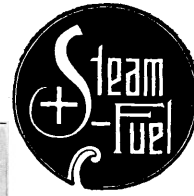
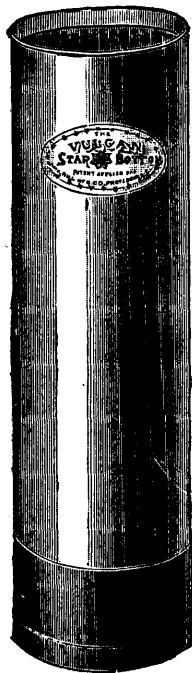
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Galvanized Iron Dye-
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**GREEN'S
ECONOMIZER**

has fulfilled the above emblem in the power house of every textile mill, bleachery or dye house wherein it has been installed. We can do this for you—

Save 10 to 20 per cent. in fuel.
Increase steaming capacity of present plant 10 to 15 per cent.

Save cost of labor in handling 10 to 15 per cent. of present fuel supply—cost of handling ashes also.

Prevent expansion and contraction of boilers, thus prolonging their life.

Give you a large volume of water above the boiling point always ready for sudden demands for extra power, heating the mill in winter, or other purposes.

What we claim to do here has been demonstrated in hundreds of textile mills.

We will be pleased to forward our catalog, which explains other advantages.

The Green Fuel Economizer Co.
MATTEAWAN, N. Y.

Sole Manufacturers in the U. S. A.

pages 449-450 missing

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THE BELL SYSTEM



Reproduces in the Mill any climatic conditions required. It automatically preserves throughout the year the best conditions of the best climates for textile working.

THE BELL MACHINE delivers air carrying moisture as aqueous vapor, just as it is found in nature, which moistens thoroughly and uniformly. Being SELF-REGULATING it does not keep on moistening when further moistening is useless.

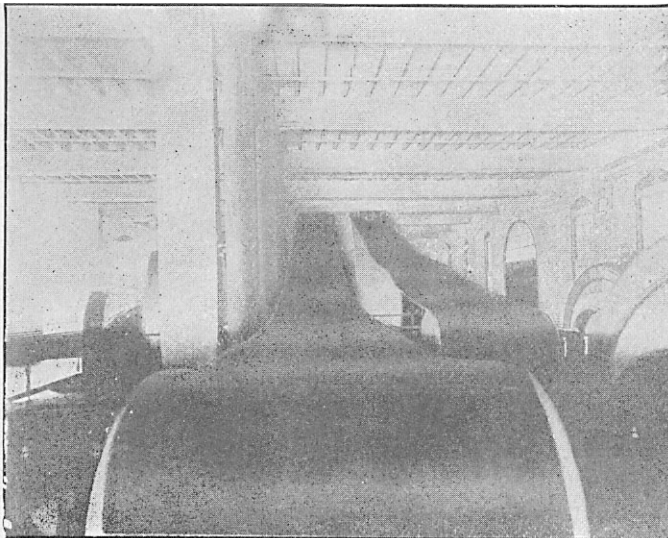
Water delivered as a mist wets rather than moistens; settles on the surface in fine globules instead of being absorbed at once into the fibres. For further particulars address

BELL PURE AIR & COOLING CO.

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JAMESTOWN, N. Y., Oct. 27, 1904.

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GENTLEMEN:—The data herewith explains the conditions of the belts you have photographs of.

Our engine is 1000 H. P. The belts run from two 20 ft. pulleys (62 R. P. M.) to two 31" pulleys (450 R. P. M.) The large belt is 40" face, double leather, on 45 ft. centers. The shorter belt is 40" face, also double leather, and on 35 ft. centers. The two belts were doing 500 H. P. when photographed and could do much more.

I have used Cling-Surface here for five years, and am entirely satisfied with it. These belts are clean, not sticky, pliable and in fine condition and the larger is running with a sag of 4 ft., while the smaller is 22" slack. I believe in slack belts and Cling-Surface permits me to run them so.

Yours very truly,

W. H. COBB, Chief Engr.
Broadhead Worsted Mills.

Five Years' Use in the Broadhead Mills

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Get a package therefore and test it—severely.

CLING-SURFACE CO., 146-152 Virginia St. Buffalo N Y

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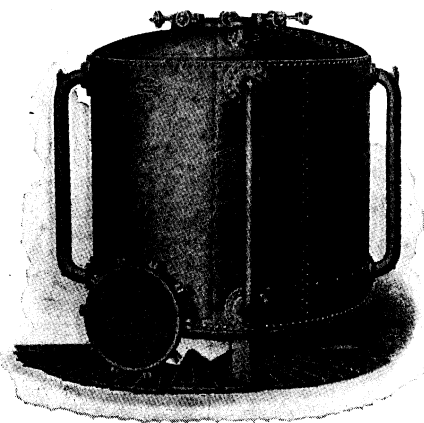
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For Sale or can be Manufactured by Paying Royalty.

The improvement in this mercerizing system consists largely of its moderate expense for the system, and practical operation on small as well as large products, making it adapted to either small or large users. Can be used with or without inside tension. Working economically a product of 200 to 500 lbs. per day per system.

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SEE PAGES 263, 264 and 265.

(452)

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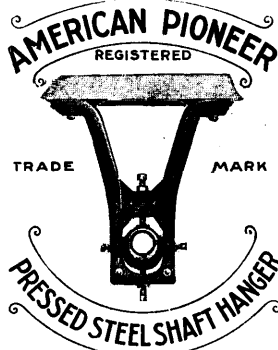
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Telephone, Main 3593, Boston.

OFFICE ESTABLISHED 1854.

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besides being
Much Handier
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Much Cheaper to Erect
and with it all, they are
Unbreakable;
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Established 1850.

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A corporation devoted exclusively to the business of buying, selling and leasing factory properties in New England; full and accurate lists of everything in the market, including water powers, mill sites, etc.; factories built to order on lease; Board of Trade negotiations conducted; expert mechanical services and appraisals; everything absolutely confidential.

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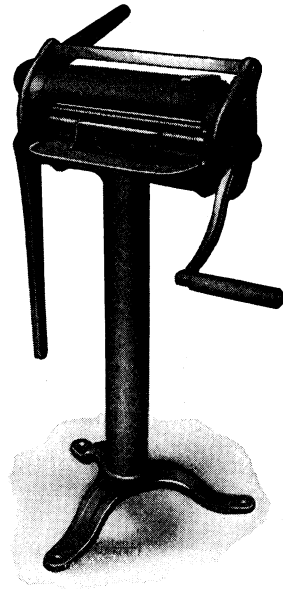
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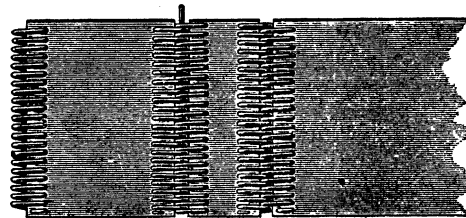
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FOR SALE OR LEASE. Woolen Mills from 2 to 20 sets cards and other manufacturing plants, either with or without machinery. For specifications apply to
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JACKSON BELT LACING MACHINE



AND WIRE COIL LACING



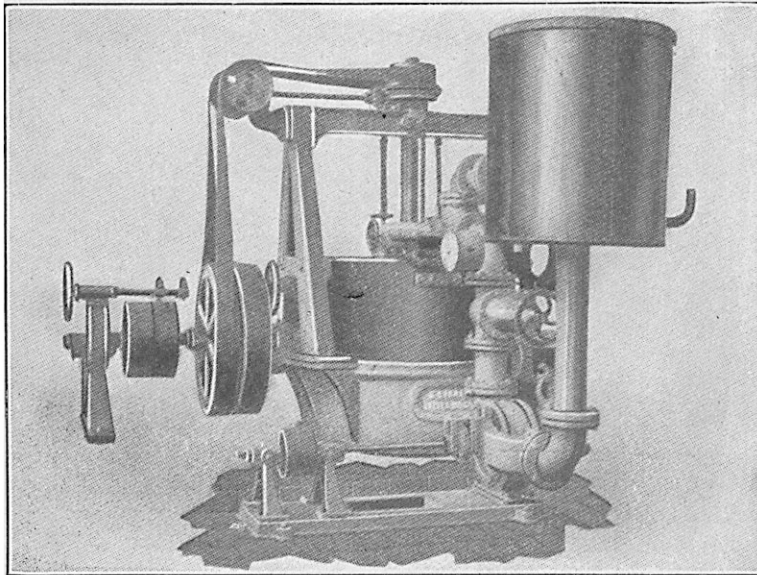
Adopted by prominent Textile Mills of U. S. A.

DIAMOND DRILL AND MACHINE Co.
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The Cohnen Centrifugal Dyeing Machine

(U. S. Patent No. 776,295, Nov. 29, 1904.)

DYES RAW STOCK, OR YARN IN COPS, SKEINS OR BUNDLES--(Warps)

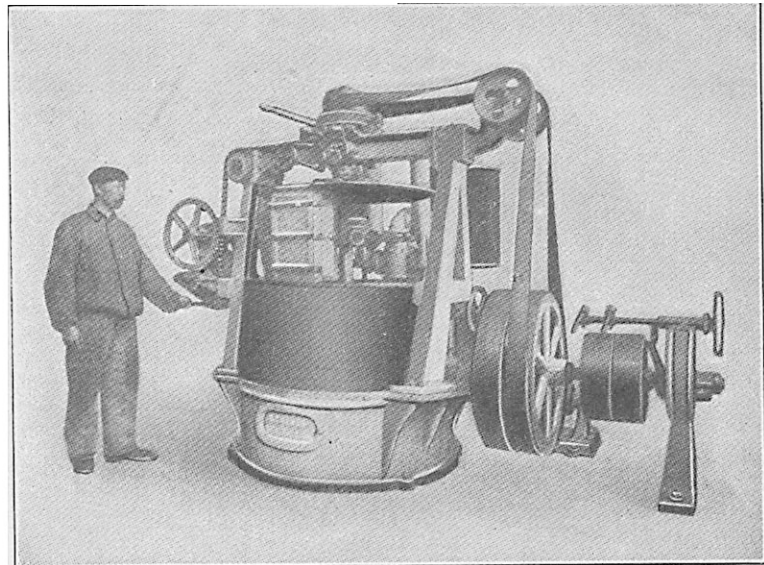


MACHINE IN POSITION FOR DYEING.

Dyes
Sulphur
Colors

without bronzing
or streaking and
leaves the stock
in perfect condi-
tion for spinning
and weaving.

Only
One
Handling
is required to dye,
oxidize and hy-
droextract ready
for the drying
room.



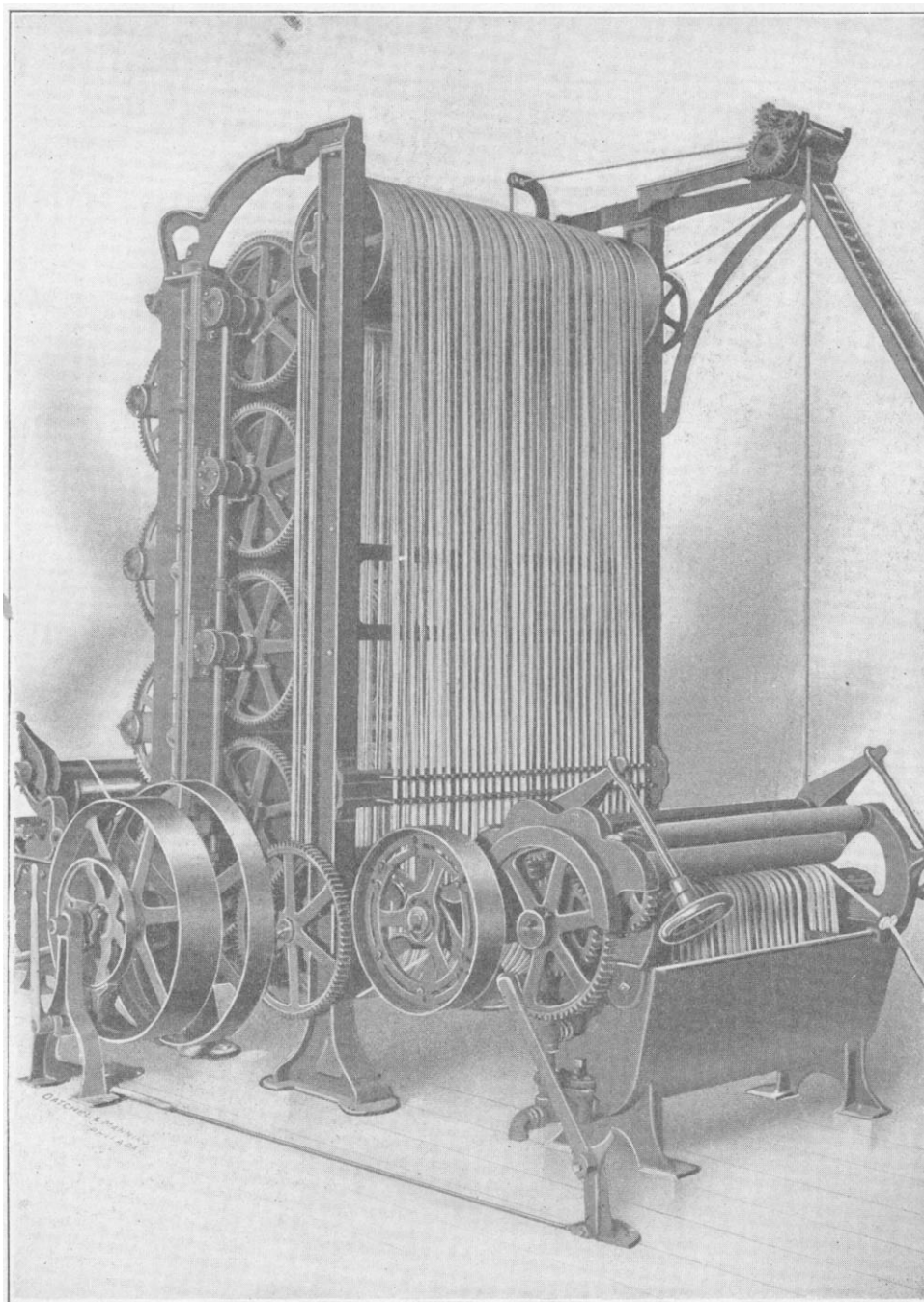
POSITION OF MACHINE READY FOR LOADING AND DISCHARGING.

The Machine may be seen in operation by applying to the American Agents.

A. KLIPSTEIN & CO.

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Indigo Warp Dyeing Machine.



**JOHN W. FRIES,
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(456)

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**MACHINES for DYEING
and BLEACHING**

**Raw Stock, Skein Yarn, Wool,
Hats and Caps**

The only Machine on the Market Successfully

Dyeing Sulphur Colors

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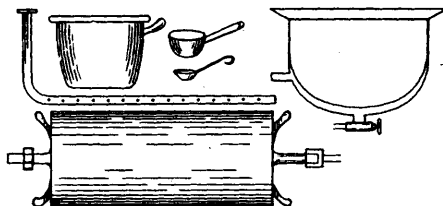
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Dye Wood Extracts, Aniline Colors, Chemicals, Etc., Sulphide Sodium, Bi-Sulph. Soda.

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Note:—Since introducing this product over 20 years ago, our Special Water Cedar has been found far more desirable and superior to any other kinds or shape of wood, and much more economical.

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By **Walter M. Gardner, F. C. S.,**

Director of the Department of Chemistry and Dyeing of the Municipal Technical College, Bradford, England;
Editor of the Journal of the Society of Dyers and Colorists.

[IN TWO PARTS.]

The only books on Wool Dyeing ever published, written by the greatest authority on the subject.

PART 1 explains the Chemistry with reference to Dyestuffs, Chemicals, Water, Soap, etc., also a thorough description on the process of Wool Scouring, Bleaching of Wool, etc.

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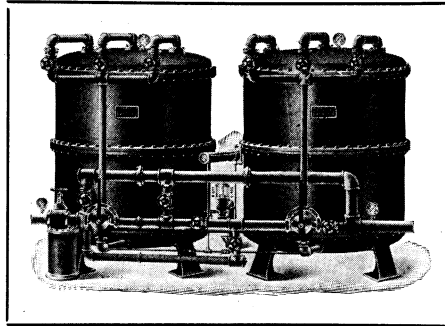
Includes also an explanation on the Methods for Dyeing Wool in Various Forms, the Suitability of the Various Artificial Dyestuffs for Different Classes of Work and the Theory of Dyeing.

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Guaranteed from ROBERTS FILTERS**

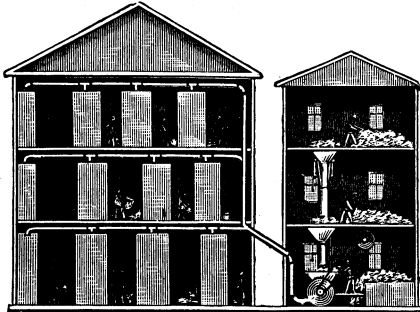
Filter Plants
of
any Capacity



Low Cost for
Installation and
Maintenance

The Standard Filter for Textile Plants

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30th and Chestnut Sts., PHILADELPHIA, PA.



CHARLES H. SCHNITZLER

Patentee and Sole Manufacturer of

The Pneumatic Conveyor

For the handling of wool and cotton stock, rags, excelsior, jute and all kinds of fibrous material, wet or dry. Also spool elevators, steam heating and ventilating, and mill work generally. Blower and fan work a specialty. This Conveyor is patented. Beware of infringement. Satisfaction guaranteed. Patented October 15, 1889.

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HIGH SPEED STEAM ENGINES, ELECTRIC MOTORS, Etc., for Heating, Ventilating, Cooling, Etc.

WING'S ACETYLENE GENERATORS, for Lighting of Houses, Churches, Factories, Stores and Towns.

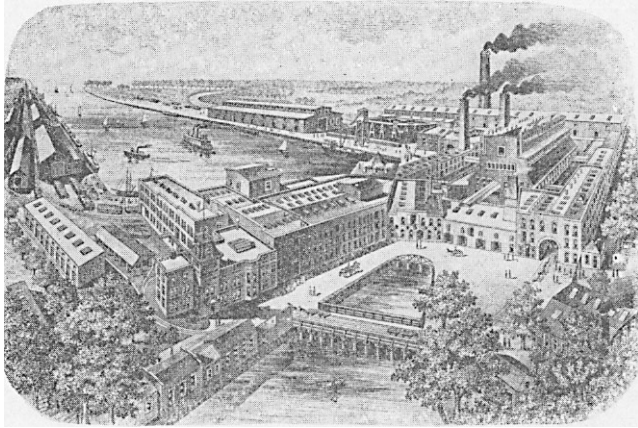
FORCED DRAUGHT AND FURNACE CONSTRUCTION DEPARTMENT.

We equip Boilers in Steam Plants with our System for improved combustion. It increases the capacity of Boilers and makes a large saving in fuel.

See Pages 402-403 for description of Wing's Disc Fan

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STAMFORD FACTORY.

Established 1796.

Incorporated 1844.

Manufacturers of all kinds of

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—and—

Dyewood Extracts.

Importers of

CHEMICALS and DYESTUFFS.

Extracts of Logwood,
Solid and Liquid,

(Special Grades for Cotton, Wool and Silk).

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Perfect Fast Black for Hosiery That Will Not Tender the Goods Nor Turn Green

Manufactured by **A. N. DUBOIS**, Inventor and Patentee. Works: N. W. Front St. and Lehigh Ave. Private Office: 2170 Sedgely Avenue, Philadelphia, Pa.

I offer the trade the following specialties that I manufacture exclusively for the **FAST BLACK DYERS UPON COTTON HOSIERY**:

FIRST:—My **Latest Improved Sanitary Fast Black in Liquid Form** ready for instant use. This black is so compounded that it will stand the highest degree of heat of the summer without in the least tendering the goods after they have been given the lisleing finish and let off in the ageing room. This black will oxidize and lisle quickly and permit the filling of the oxidizing rooms three times in 24 hours on the lisle finish when room is of good size, and not less than two times in 18 to 20 hours in boxed-in-machine.

SECOND:—My **New Compound Liquid Trichromate**, far better than the Bichromate now used by all fast black dyers. With this new product the fast black dyers can make their black ungreenable if they so desire, because it is much richer in chromium and oxygen than the Bichromate, as can be seen by their chemical formulae, which is for the Bichromate Cr_2O_3 and for the Trichromate Cr_3O_{10} , or one more chromium and three oxygen, which make it one-third stronger than the Bichromate. This oxygen acting upon the green oxidized aniline, makes it ungreenable, which can not be done with the Bichromate. But most important is the fact that no steam is required, as it acts well with cold water, which saves coal and makes the dye-house comfortable.

THIRD:—My **Compound Fast Black Fastener and Brightener**, to be used either with the Trichromate or the ordinary Bichromate, also in the cold, and which will give a lustre to the goods never before obtained by Bichromate. It is put in the chrome bath, and its action is such that the goods get ungreenable and lustrous; indeed, the lustre is such that Egyptian yarn knitted hosiery looks

almost as bright as though mercerized yarn was used. Fast Black Dyers will find it an invaluable chemical with which they can produce either shade of black they desire and give their customers a black that will not turn green to acid muriatic test.

FOURTH:—My **Diamond Softener**, already put up for instant use. This softener is better than any soap or olive oil softener made or any other similar compounds. It is the result of my 24 years' experience in fast black dyeing. It never will stain the boxes or bands of hosiery, it has a pleasant odor and gives a nice finish. It agrees well with any colors as well as fast black.

With the above four compounds the proprietors of fast black dye works or hosiery doing their own dyeing are sure to get good results always, and will not depend upon unskillful boss fast black dyers. The boss dyer will find it very convenient to have his dye and finishing compounds already made up for instant use.

In offering the trade my Latest Improved Sanitary Fast Black Dye in Liquid Form, I mean to allow the use of my Letters Patent, No 723,147 for the Lisle Thread Finish free of any royalty, and will give also free of charge all instruction necessary for the dyeing and finishing process, and so long as one uses the fast black dye, he will be permitted the use of the Lisle Thread Finish Letter Patent free; this privilege, however, to cease when applied to other fast black dyes.

Besides the above specialties, I retain my former business of starting up mills in fast black and colors, dyeing and bleaching, and contracting for complete equipment with or without the dye formulae.

**Not Only Does
It Appear So
But Is=TRUE**

A tree with blight cannot produce good fruit. No less true is it that wool scoured with strong alkalies (caustic or soda ash) will not produce that soft, lofty effect, or that fine finished product which every mill is striving to get and maintain.

WYANDOTTE TEXTILE SODA

used in connection with strong alkalies for scouring wool, counteracts that harsh effect which these produce when used alone.

Wyandotte Textile Soda prepares the wool so that it takes the dye uniformly and evenly, giving no trouble from streaks and at the same time imparting a brighter finish and a faster color.

Wyandotte Textile Soda imparts to the cloth that peculiar finished condition which gives distinction and character to your output.

None Genuine except with a card bearing this Trade Mark



That **Wyandotte Textile Soda** is well worth your consideration admits of no question. And, as our guarantee protects you against loss, it is good business policy to give this article a trial.

Then place your order with your supply house without delay.

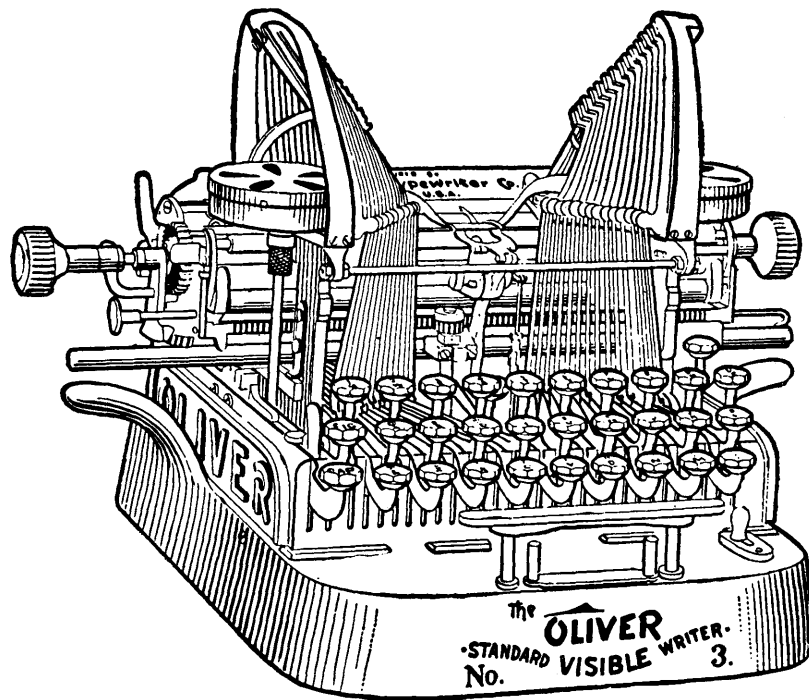
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[ESTABLISHED 1852.]

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Wool Drying Machines,
Burr Pickers,
Wool Dusting Machines,**

Waste Dusting Machines,

Carbonizing Dusters,

Automatic Feeds,

Metallic Waste Cards,

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Rag Dusters,

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Suction and Blower Fans,

Burr Machines and Breasts for

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Press Roll Machines,

Crush Roll Machines for Carbon-
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Automatic Cotton Stock Dyeing
Machines,

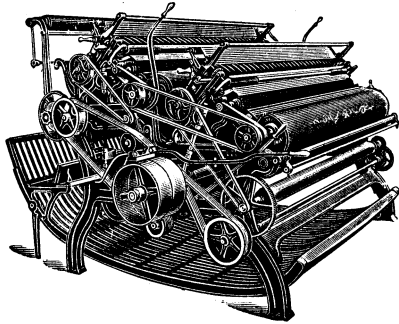
Automatic Cotton Stock Drying
Machines,

Automatic Extractors for Cotton
Stock,

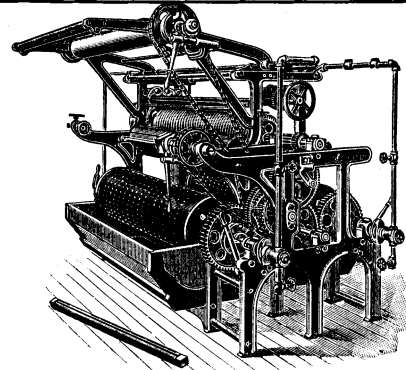
Licker-in Rolls for Cotton Cards.

PARKS & WOOLSON

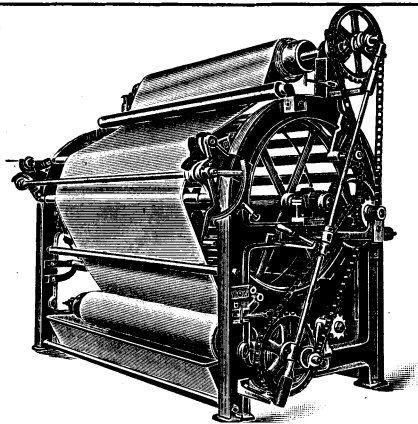
MACHINE COMPANY SPRINGFIELD
VERMONT



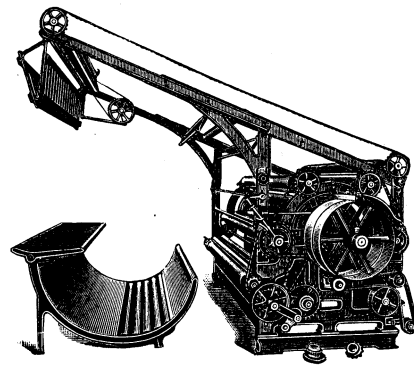
DOUBLE SHEAR
All Kinds of Shears



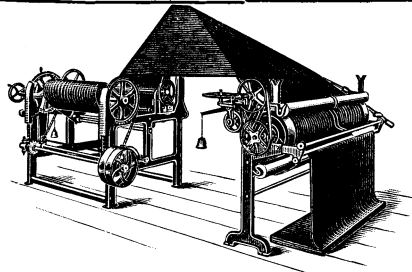
STEAM LUSTERING MACHINE



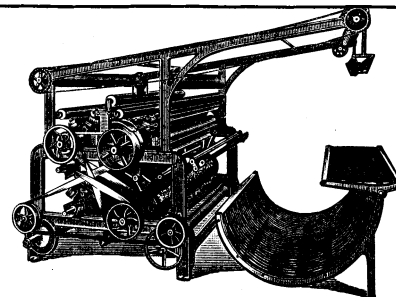
UP AND DOWN TWO-CONTACT GIG
All Kinds of Gigs



SIXTEEN-WORKER NAPPER
COTTON, WOOLEN OR KNIT GOODS



MEASURING, DOUBLING AND ROLLING
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FOUR-CYLINDER MACHINE
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FABRIC IN DIRECT CONTACT WITH THE NAPPING ROLLERS ALL AROUND THE DRUM.

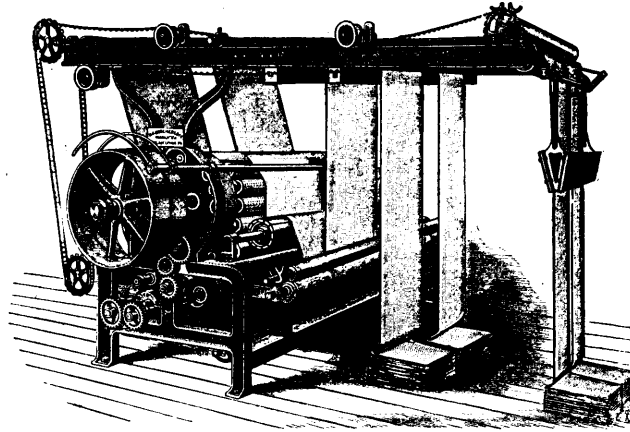
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Better finish.

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No shifting of filling.

Better results than can be obtained with teasels.



Long or short nap as desired on cotton or woolen goods, from the lightest to the heaviest.

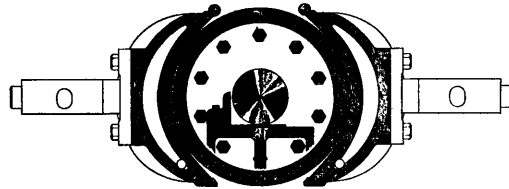
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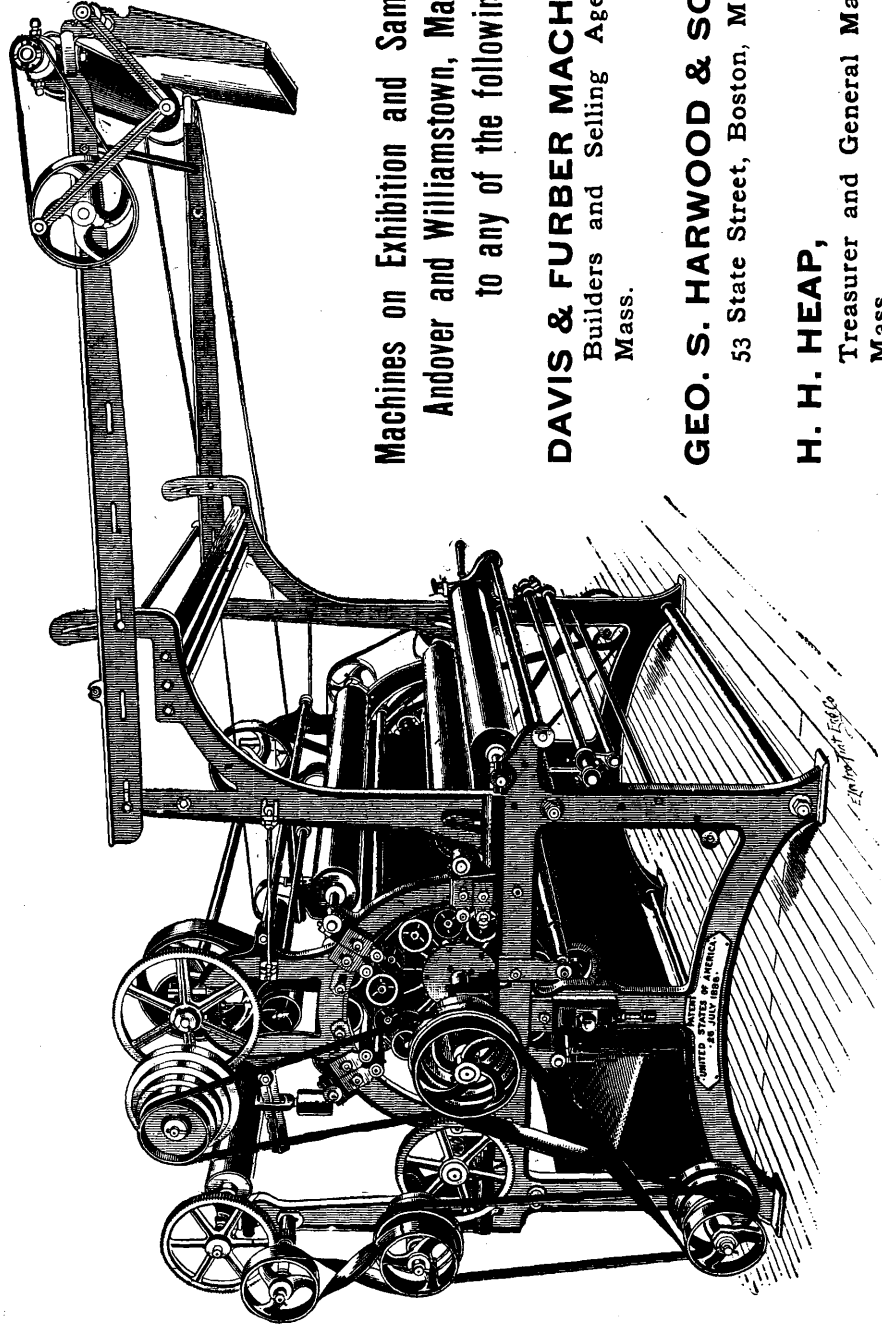
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Combination Clearing and Beating Machine,

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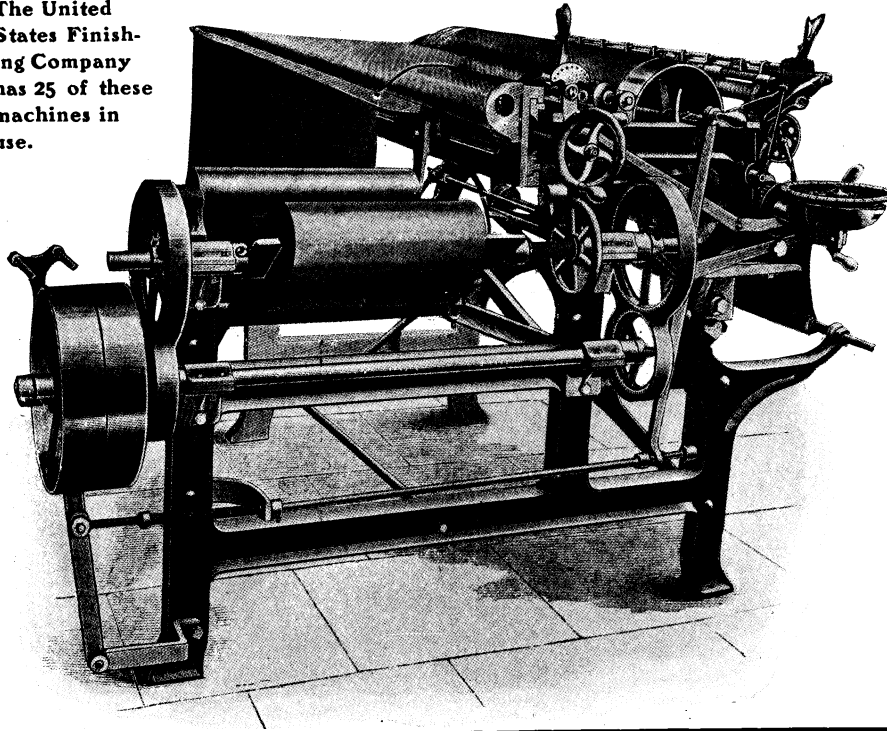
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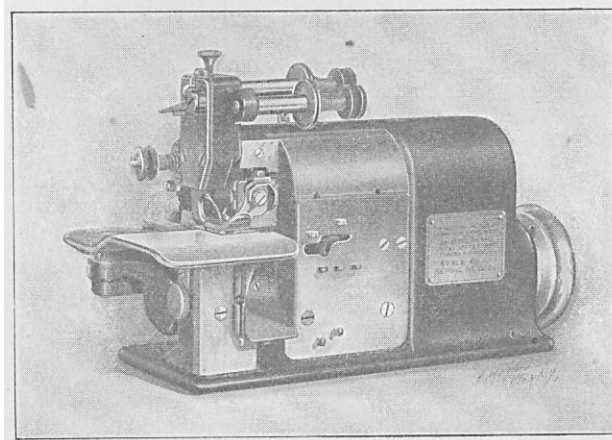
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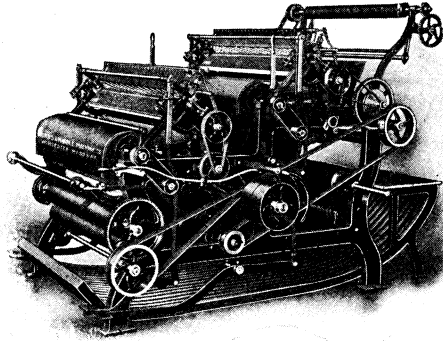
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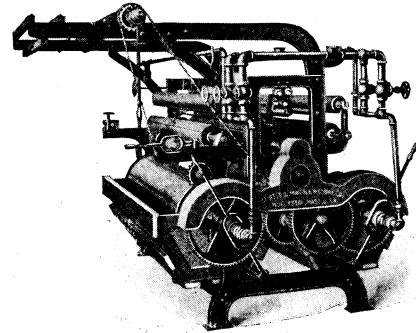
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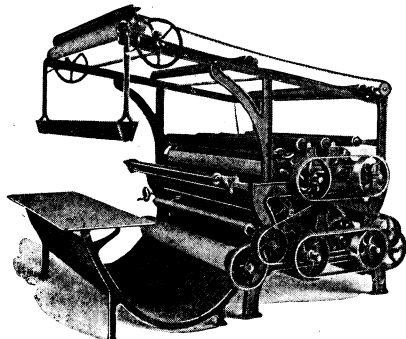
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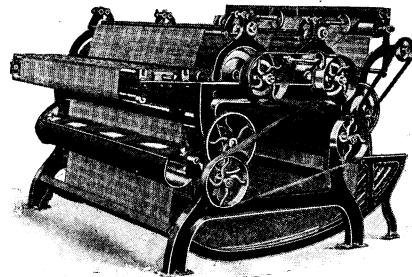
SHEARING MACHINES for all kinds of Cotton, Woolen and Worsted Goods, Plushes, Velvets, Carpets, Rugs, Mats, etc.; Teasel Gigs; Wire Nappers; Woolen Brushing Machines; Worsted Sanding and Brushing Machines; Cotton Brushing Machines; Gas Singeing Machines; Steam Finishing Machines; Stretching and Rolling Machines; Doubling and Tacking Machines; Dewing or Spraying Machines; Rotary Presses; Flock Cutters; Rag Cutters; Cloth Winders and Measurers, Cloth Folding and Measuring Machines; Railway Sewing Machines; Carpet, Plush, Velvet and Corduroy Machinery; Shear Grinders, etc.

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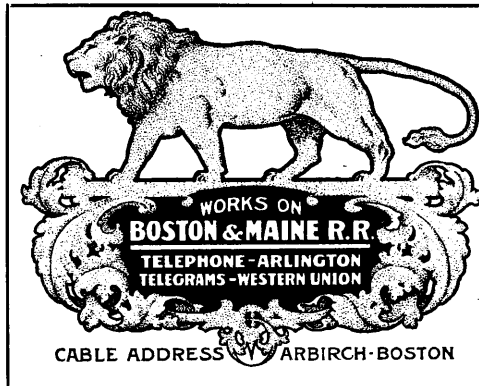
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DRYING
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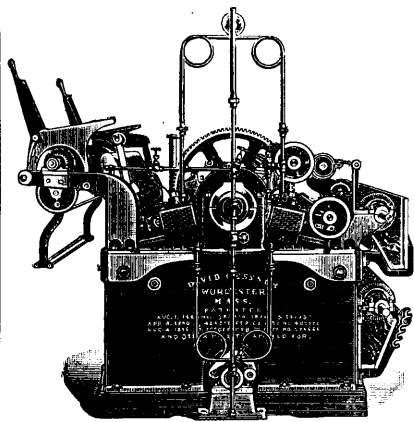
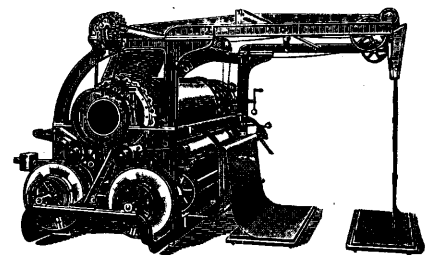
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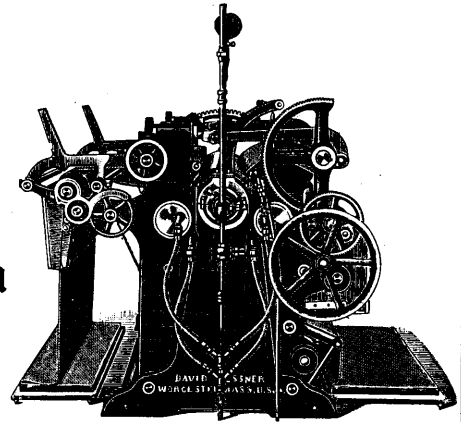


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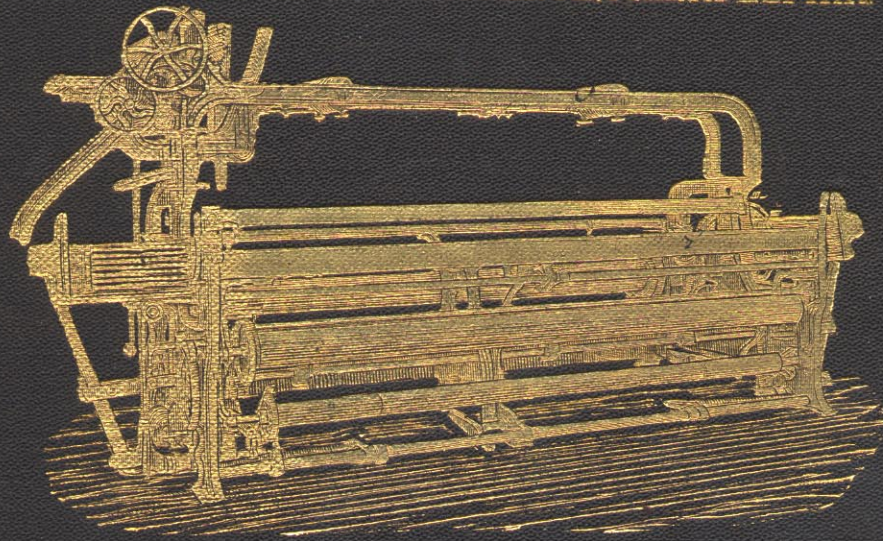
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