"IDEAL"
AUTOMATIC LOOM

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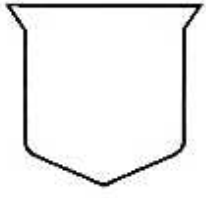

The Stafford Company

READVILLE, MASS.

AUTOMATIC LOOM

THE "Ideal" automatic loom stands absolutely in a class by itself. Its mechanical principles are unique and the patents protecting them are basic and unassailable. Every movement of the loom is smooth and thoroughly mechanical; in design and construction it combines simplicity and strength; its durability and freedom from breakages and capacity for high percentages of production are recognized, and its ability to weave the highest grade of cloth ever produced upon an automatic loom is now generally admitted, and it is the only automatic loom ever constructed that can use cops or bobbins interchangeably.

In a word it is a strictly practical machine, built by practical men for practical users, and the thousands installed within the few years of its existence and the results obtained by the mills operating them, together with the fact that nearly every mill has placed repeat orders, are incontestable evidence of the validity of the claims made for this loom.

The success of the "Ideal" loom is due not solely to its automatic features, but in a great measure to the loom itself.

Previous to the advent of the "Ideal" the scope of an automatic weft changing loom was limited and maintenance expensive. This was due largely to the fact that attention had been concentrated on the development of the automatic mechanism instead of the loom itself, or in other words, the weaving mechanism was made of secondary importance.

The policy of this Company has been just the reverse of the above. Its first efforts were directed entirely towards

the perfection of the highest grade plain cotton loom which could be constructed, capable of weaving the widest range and best quality of cloth, and its fullest energies were bent in this direction until the now universally known Stafford plain cotton loom had been thoroughly introduced.

With the foundation, or "weaving mechanism," perfected, the automatic features were next taken up with the same care and thoroughness. The end in view was the production of a simple, strong and durable device which would in no way interfere with the weaving features of the loom, but, retaining all the properties of the plain cotton loom, would perform motion for motion, without the slightest jar or strain, the work of a weaver in replacing the spent shuttle with a fresh one and restarting the loom. This result was successfully accomplished by the use of important and entirely new features which render the weaving and weft replenishing features of the loom entirely distinct and independent one from the other and preclude the possibility of their ever being in operation at the same time.

The "Ideal" automatic loom differs from any other in that it changes the shuttle when the filling runs out or breaks, the change being effected when the loom is stopped. The reserve supply of shuttles is kept in a magazine attached to the breast beam; the filling fork indicates the absence of weft in the usual way and the loom stops with the shuttle in the box at the magazine end. The empty shuttle is then ejected into the catcher box, a fresh shuttle carried (not thrust) from the magazine and placed in the lay and the loom restarts weaving exactly the same as though controlled by a weaver operating a plain loom. Sufficient time being taken to eliminate sudden and violent movements, the change of shuttles is effected without any strain on the loom or the automatic mechanism and danger of breakages of bobbins, castings, shuttles or injury to the warp or filling is entirely done away with.

The loom is equipped with a mechanical warp stop motion of simple design, positive and immediate in its action.

Each end of warp is control'ed by one drop wire and is so arranged that on the breaking of a warp end the loom stops, rendering it necessary for the weaver to piece the broken end before the loom can be restarted.

As the "Ideal" loom is simply a high grade plain loom to which has been attached an ingenious and simple device which automatically changes the shuttle, it is suitable for practically every class of goods that is woven on a plain loom and can be changed over from one fabric to another as readily as any other plain loom. Some of the various styles of looms that we build are shown on the pages following.

The construction of our looms, both in material and workmanship is of the best and is manifestly superior to anything heretofore seen in loom manufacture. We have invested a large amount of money in equipping our foundry with moulding machines with a view of obtaining absolute uniformity in our castings and all our departments are equipped with the latest up-to-date machines operated by high-grade mechanics to obtain the best results at the lowest cost. The reduced cost enables us to put in constructive details more labor than has ever been done hitherto in loom construction, the result of which accrues to the benefit of the mills in larger production and less breakages of parts. The fact that the shuttle is changed when the loom is at rest and, the transfer once accomplished the mechanism is idle until called into play again the next time the filling runs out, is another reason for the small amount of repairs connected with the loom. Reports received from time to time from mills operating our looms show extraordinary low cost for repairs and up-keep and our own accounts with these mills verify these figures.

Beginning with the earliest installation the last fact is interesting as it shows that the wear and tear on the "Ideal" loom is no more than on any plain loom. In fact, we believe that, due to the extra weight of our machines and the special pains taken in construction, at the expiration of a

term of years they will show less wear than any other looms, regardless of the type. Further than this, the actual cost for up-keep for the period under consideration would be less for the "Ideal" than for any of its competitors.

The great objection to automatic looms prior to the introduction of the "Ideal" lay in the use of a single shuttle, the change of filling being accomplished with the loom in motion by violently forcing a fresh bobbin into the place of the spent one, the incoming bobbin driving the other out through the bottom of the shuttle. This construction necessarily caused constant breakages of bobbins and castings and frequently tore out an entire warp, entailing serious loss to the mill, not only in bobbins and castings but in production as well. Again, in bobbin-changing looms a self-threading shuttle was used and as it frequently happened that it failed to thread itself, thick and thin places were unavoidable hence the well-founded complaint that automatic weaving was imperfect. Conditions now are quite different however, broken bobbins are never heard of in mills operating "Ideal" looms and smash-hands are an unknown quantity. It is also generally conceded that on a question of quality of production there are no looms, either plain or automatic, which can show such excellent and consistent results.

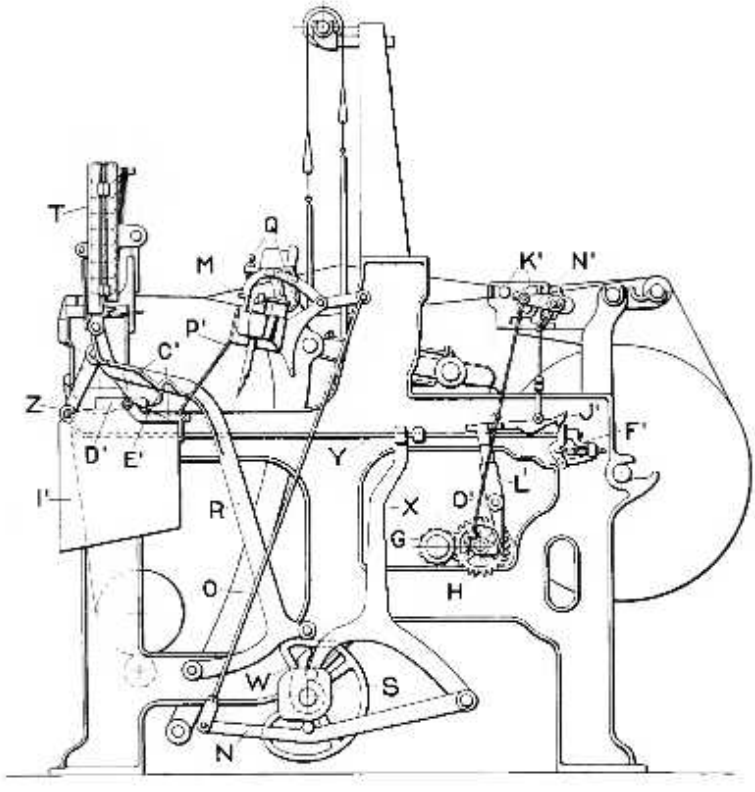

PLATE 1

Automatic Loom — Magazine End

MECHANICAL DESCRIPTION

OF THE

PAGES 11 to 15 and the accompanying illustrations give a comprehensive idea of the manner in which the automatic shuttle replenishing motion is operated.

In Plates 2 and 3 K indicates a combination friction pulley and bevel gear; I indicates a shaft having a bevel pinion, J, on one end and a worm, H, on the other. The pinion J engages with the gear and the worm H with the worm wheel G. It follows that as the pulley K has a continuous motion the worm wheel G must also have a continuous motion but at a comparatively slow speed. This worm wheel is loose on the shaft L and carries no load until brought into use by means of the filling fork which detects the absence of weft in the usual way and through its connection gives the impetus to the change shaft. This is accomplished through the connection C and E and the clutch lever F which is mounted on a hub keyed to the cross shaft. This lever F is caused to engage with the disk cast integral with the worm wheel with the result that the cross shaft is set in motion from the worm gear. Through the medium of cams on the opposite end of the shaft (see Plate 1) the changing of the shuttle is accomplished.

The cams referred to are three in number; two of them are cast together as a single casting and the third is locked to the other two in such a way that it is impossible for them to get out of time. Turning to Plate 1, S indicates the conveyor lever cam and W the starting lever cam which is cast integral with the front board cam. The front board cam is the edge cam shown in contact with the roll on the lever N.