A Modern Braiding Machine Development

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In order to understand the situation in the braiding industry, it is necessary to consider the types of machines found doing the various braiding operations. In the United States, three general classes of machines are found: the American, the German and the high speed machines. The first two classes are made in all sizes and types and are used for producing any kind of braided product. The third class is limited to round braids and has been used most extensively in the smaller sizes.

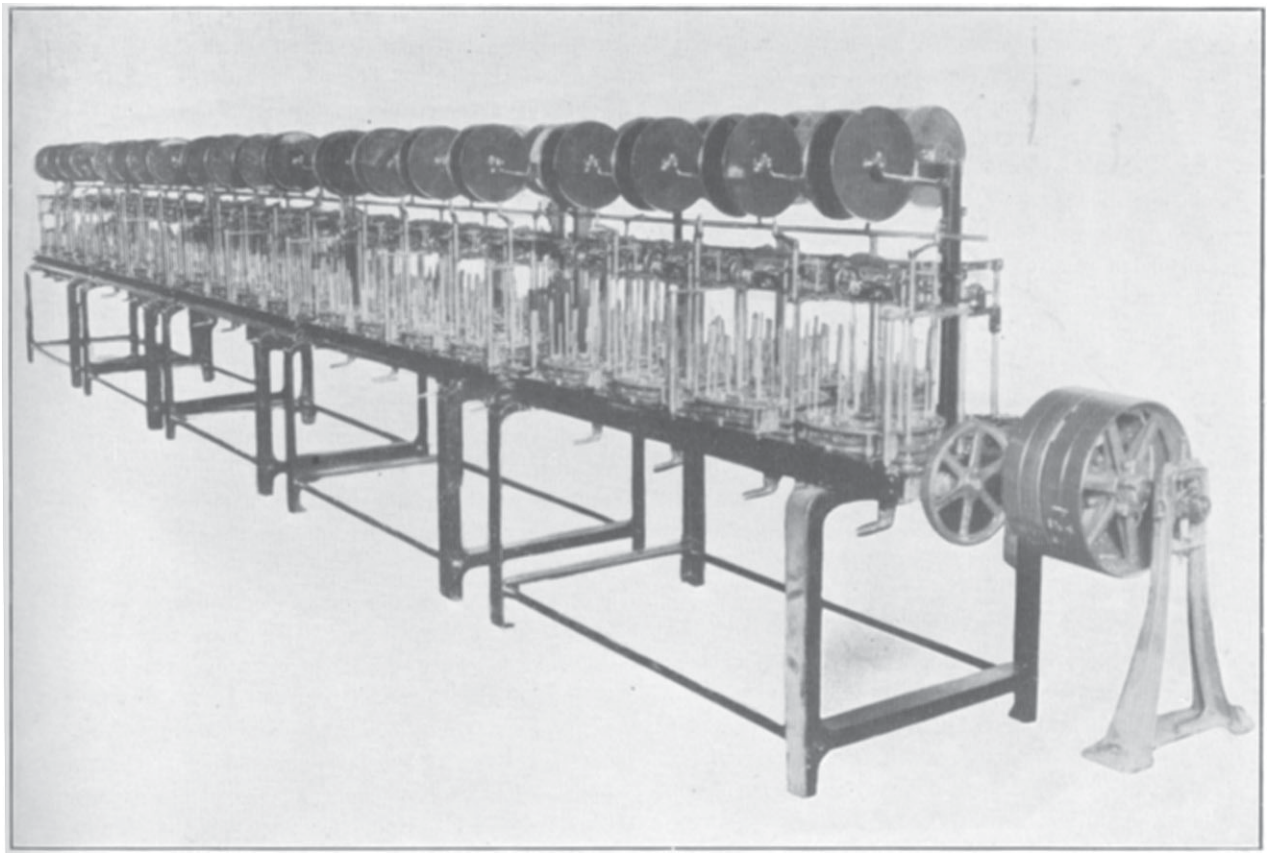

Figure 1
Multiple Head Machines for the Manufacture of Elastic Braids.

The American machines are single head units made largely of cast iron and built to sell very cheaply. In the majority of cases, they are capable of producing only one braid per machine. The braiders are made for belt drive almost exclusively, and in the small sizes are placed back to back in benches in double rows and driven by belts from the line-shaft placed beneath and between the machines. The carriers have been of the outside weight type used for their simplicity and ease of operation.

The German-type machines have differed from the American machines in that in the small and medium sizes, they have been built in the multiple-head type. They are constructed with steel plates having a number of braiding units in each plate, with the machines connected in series. Since the machines are dependent upon each other, they use a com-

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mon stop motion and feed head for each multiple-head braider. Power is applied through gear drive and the machines are located in pairs, back to back and at right angles to the line shaft.

The larger machines are used for cable covering, hose covering and packings. The difference between the American and German machines is very slight and the principal characteristics of both are the same.

The high speed braiders are unlike either of the types just described. In this class of machine, the yarns are mounted in such a manner that they revolve in opposite directions, half in one way and half in the other, and the threads from the lower yarn packages are passed around the upper thread packages in such a way as to produce the desired braid. Obviously, this type of machine cannot be used for making flat braids and in actual practice has been largely limited to the machines having less than twenty-four carriers.

A glance at the situation will show that all of these classes have certain advantages which can be combined into a new type of machine which will be more efficient than the old styles from which it sprang. During the last few years, the Fidelity Machine Company has developed a machine of this type and has now built these machines for producing all of the ordinary braided products.

The new type follows the American machines in having an individual stop motion, feed head and take-off head for each unit, and follows the German machine in having a multiple-head frame with a positive gear drive for each braiding unit.

In construction the new machine consists of a number of braiding units mounted on a structural steel and cast iron frame. The lineshaft supplying the power is mounted in the frame and is made in lengths slightly longer than the frame. Each end of the shaft is provided with flexible couplings so that any number of machines can be placed end to end, and the whole installation be driven by one motor and chain drive.

Each braiding unit is independent of the others in the multiple head machine and can be operated at will. Each one is provided with its own stop motion, feed head and take-off head, but all of the heads on one machine are driven through the same change gears.

In cases where only one multiple head machine is needed to take care of the requirements, the motor and chain drive are mounted in the frame of the machine and a unit obtained which can be installed in any convenient place, without regard to belting or shafting.

The Fidelity multiple head machines are clean; the driving gears are incased in guards which catch the oil drip, and the frames are so designed that the floors beneath them can be swept readily. These machines are compact and are arranged in various groupings to utilize the floor space to the best advantage.

In designing the multiple head machines, the convenience of the operation has been kept in mind and the completed braiders have many new features which help the operator. For instance, the top plates are all the proper height for the operator to run the machines without stooping. Only one set of gears needs to be changed when a different braid is to be made on all the heads of a multiple head braider. An individual crank is provided for each head for use in threading up the carriers. These and other features make the new machines easy to operate.

The ease of installation of the multiple head braider is a feature which will appeal to everyone. Each multiple head braider has the lineshaft built into it, and is equipped with flexible couplings at the end. When the machines are installed in a plant, it is necessary to place them end to end with the halves of the couplings engaged. Bolt the legs to the floor, connect the motor, and the installation is ready to run.

The power is applied to the multiple head braiders in a very direct and positive manner. All unnecessary lineshaft, pulleys, belts and hangers are eliminated, and consequently the friction loss is reduced to a minimum. A most important point about this new drive is the fact that there is not an opportunity for belt slip, and the machines must always run at the designed speed. Under these conditions, a consistently high production is maintained.

Figure 1 shows a number of Fidelity mul-

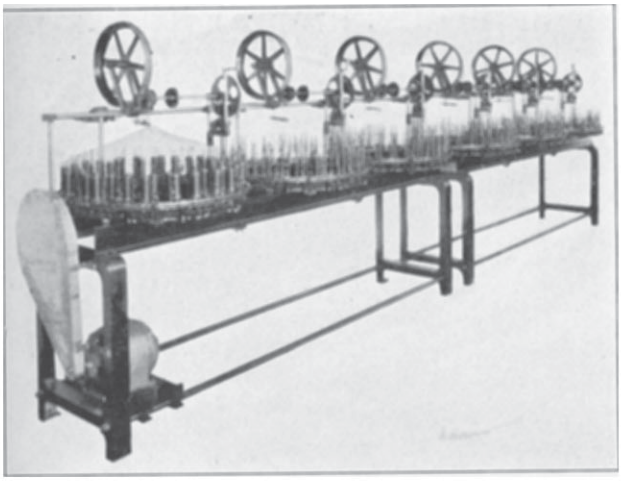

Figure 2
Machine Fitted With Individual Motor Drive for Producing Typing Tape.

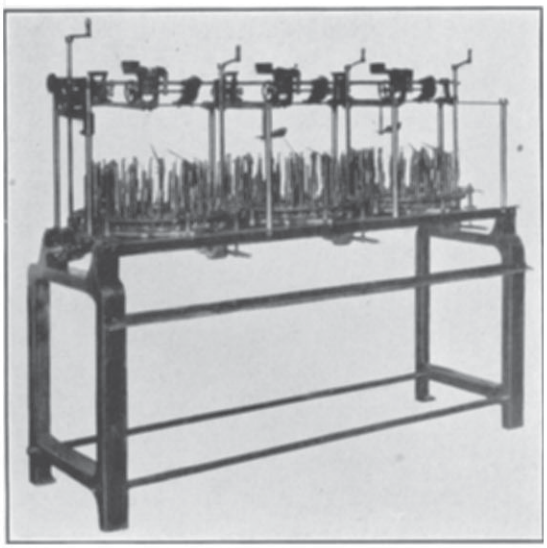

Figure 3
Multiple Head Braiders for the Manufacture of Gas Tubing.

tiple head machines made for the manufacture of elastic braids. Note the clean, compact appearance and the absence of belts.

Figure 2 shows a machine fitted with individual motor drive and used for producing tying tape. This type of unit can be located in any convenient place and is independent of line-shafts and belting.

the frame and the room available for the tubing; also the convenient height of the braiding head.

A number of the multiple head braiders made for producing small braided cords are shown in Figure 4. These machines are

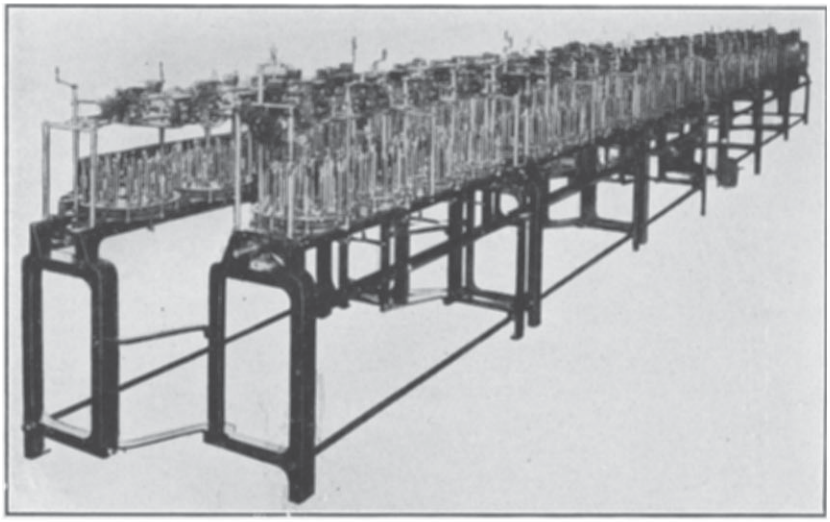

Figure 4
Multiple Head Braiders for Producing Small Braided Cords.

Figure 3 shows a number of the multiple head braiders made for the manufacture of gas tubing. Notice the clear space underneath equipped with overhead reels having a traverse motion for winding up the finished material The wide sturdy frame is especially noticeable.