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1,494,072

N. MARSHALL
SOCKET LINING MACHINE

Filed May 6, 1921

Fig. 1.

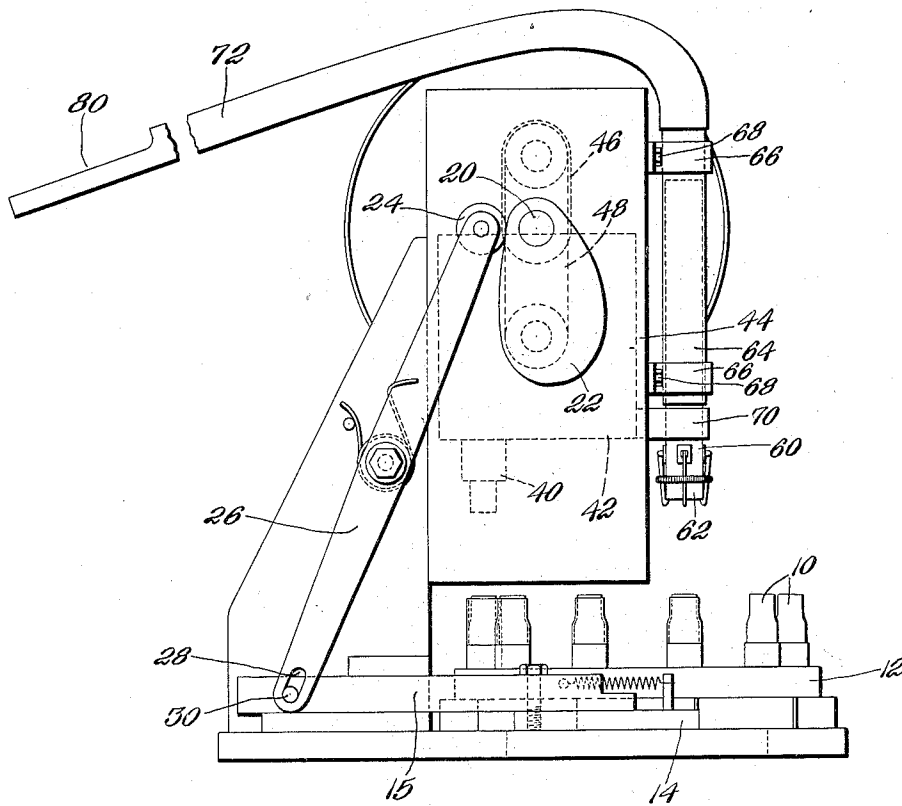


Fig. 2.

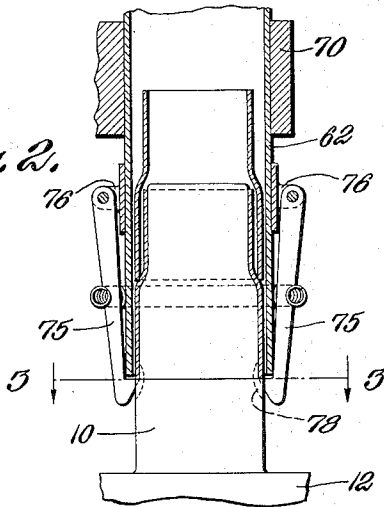
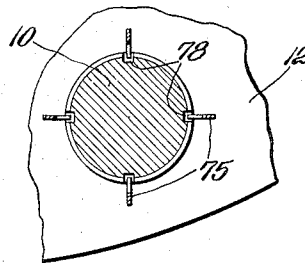


Fig. 3.



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SOCKET-LINING MACHINE.

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To all whom it may concern:

Be it known that I, NORMAN MARSHALL, a citizen of the United States, residing at Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Socket-Lining Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a machine for the manufacture of insulating linings for electrical sockets and the like.

The insulating linings now commonly employed in the manufacture of electric light sockets comprise cylindrical fibrous tubes of approximately an inch and a half in length and approximately one inch in diameter. These tubes are usually manufactured of paper, rolled into cylindrical form and saturated and coated with a suitable water proofing material. In order to adapt each cylindrical fibrous tube to the contour of the electric socket, the upper portion thereof is reduced in diameter to form a reduced neck portion.

The object of the present invention is to provide a machine for performing the desired reducing operation upon the upper end of the cylindrical tube in an advantageous and economical manner and in which successive tubes after having been reduced, are nested and automatically delivered by the machine to a position from which they may be conveniently removed in nested lengths.

To this end therefore one feature of the invention contemplates a pick-off mechanism arranged to pick off the socket linings as they are formed, to nest them, and to automatically convey the nested linings to a position from which they may be conveniently removed in convenient lengths.

In the drawing illustrating the preferred form of the invention, Figure 1 is a side elevation of a socket lining machine; Fig. 2 is a sectional detail of a portion of the pick-off mechanism; and Fig. 3 is a sectional plan taken on the line 3—3 of Fig. 2.

The socket lining machine illustrated in the drawing is described as follows: Successive cylindrical fibrous tubes from which the finished socket linings are to be formed, are manually fed by an operator upon a plurality of mandrels 10 mounted upon and extended upwardly from a table 12 arranged

to be intermittently rotated by the action of an oscillatory pawl 14 which engages a series of teeth 16 upon the plate 12. The pawl 14 is pivoted upon a pawl arm 15, arranged to be reciprocated by the main driving shaft 20 of the machine, through a cam 22 upon said shaft, cam roller 24, and pivoted cam arm 26, the lower end of which is provided with a slot 28 embracing a pin 30 laterally extended from the rear portion of the pawl arm 15.

The cylindrical tubes after having been fed upon the mandrels 10 are successively brought, through the intermittent rotation of the table 12, into a position below a reducing die 40, diagrammatically shown in dotted lines Fig. 1. The reducing die 40 is carried by a block 42 arranged to reciprocate in vertical ways 44 constituting a part of the machine frame. The block 42 is reciprocated from the main driving shaft through the crank 46 and connecting rod 48. The construction and mode of operation of the reducing die and its actuating mechanism are well-known and familiar to those skilled in the art comprising preferably the construction disclosed in the U. S. patent to Marshall, No. 815,362, March 20, 1906, to which reference may be had. From the description thus far, and from a consideration of Fig. 1, it will be apparent, that at each rotation of the main driving shaft of the machine, the reducing die 40 descends and engages the cylindrical tube previously brought into a position beneath it and performs the reducing operation.

After the reducing operation has been performed the reduced tube is intermittently moved around with the mandrels 10 and plate 12, by the action of the reciprocatory pawl 14 until it assumes a position beneath a pick-off mechanism 60. The pick-off mechanism 60 comprises a cylindrical tube 62 arranged to telescope within a second tube 64 secured by brackets 66 and bolts 68 to the vertical ways 44, constituting a part of the machine frame. The cylindrical tube 62 is secured to an arm 70 mounted upon and extended from the reciprocating block 42. It will therefore be apparent that at each reciprocation of the block 42 and reducing die 40, the pick-off mechanism will be caused to descend. Provision is made for engaging the finishing socket lining as the cylindrical tube 62 of the pick-off mechanism descends thereover in order that as the

pick-off mechanism moves upwardly upon its return stroke the socket lining may be lifted. For this purpose a plurality of spring pressed hooks 75 are pivotally mounted upon ears 76 extended outwardly from the upper portion of the cylindrical tube 62. The hook portions of the hooks 75 are adapted to enter recesses 78 in the mandrel 10 below the end of the finished socket lining. From a consideration of Fig. 2, it will be apparent that as the cylindrical tube 62 descends over successive socket linings, the hooks 75 are forced under the ends of the socket lining and operate, as the cylindrical tube 62 is raised at each cycle of the machine, not only to pick off the individual socket linings from successive mandrels, but also to nest the socket linings in the manner illustrated in Fig. 2. During the continued operation of the machine, a string of nested socket linings is therefore conveyed through the cylindrical tube 62 and through a conduit 72 cooperating with the upper end thereof to any desired point at which convenient lengths of nested socket linings may be removed through an opening 80 in the top thereof.

The present machine it will therefore be observed enables the operator to feed the cylindrical tubes to the mandrels without devoting any attention to the removal of the completed socket linings. Furthermore, the nesting and delivery of the completed socket linings enables convenient lengths thereof to be removed in a string from the end of the conduit, thus affording a convenient manner of handling a plurality of socket linings for shipment.

While the invention has been illustrated and described as embodied in a machine for the manufacture of electrical socket linings, it will be understood that it may be embodied in machines for the manufacture of other two diameter tubes.

Having thus described the invention, what is claimed is:—

1. A machine for the manufacture of socket linings and the like having, in combination, a plurality of mandrels, means for intermittently rotating the mandrels, a neck reducing mechanism, and a pick-off mechanism arranged to operate in timed relation to the reducing mechanism to pick off, and nest successive completed socket linings from successive mandrels.

2. A machine for the manufacture of socket linings and the like having, in combination, means for forming a reduced portion upon the end of a succession of cylindrical tubes, and means cooperating therewith for automatically removing and nesting successive tubes after they have been reduced.

3. A machine for the manufacture of socket linings and the like having, in com-

bination, means for supporting a plurality of cylindrical tubes including a series of mandrels, means for intermittently advancing the mandrels, means for forming a reduced neck portion on tubes carried by successive mandrels including a reciprocatory reducing die, and a pick-off mechanism operatively connected with the reducing die for removing and nesting the completed socket linings from successive mandrels.

4. A machine for the manufacture of socket linings and the like having, in combination, means for supporting a series of cylindrical tubes, means for forming a reducing neck portion upon successive tubes, and a pick-off mechanism operatively connected with the reducing means arranged to pick-off reduced tubes from the tube supporting means, said pick-off mechanism including a reciprocatory cylindrical tube and spring actuated tube engaging members.

5. A machine for the manufacture of socket linings and the like having, in combination, tube supporting means, means for forming a reducing neck portion upon a succession of tubes including a reducing die, and a pick-off mechanism for picking off and nesting successive linings from the supporting means including a tube fixed to the machine frame, a second tube arranged to telescope within the first tube, spring actuated engaging members, and connections between the second tube and the reducing die for actuating the pick-off mechanism in timed relation to the reducing operation.

6. A machine for the manufacture of socket linings and the like having, in combination, means for supporting a plurality of cylindrical tubes including a rotatable plate, a plurality of mandrels extended upwardly from said plate, means for intermittently rotating the plate and mandrels, means for forming a reduced neck portion upon successive tubes as they are rotated with the mandrels including a reciprocatory reducing die, and a pick-off mechanism, operatively connected with the reducing die arranged to pick off a completed socket lining from its supporting mandrel at each operation of the reducing mechanism, said pick-off mechanism including a cylindrical tube and spring actuated tube engaging members.

7. A machine for the manufacture of socket linings and the like having, in combination, means for supporting a plurality of cylindrical tubes including a plurality of rotatable mandrels, means for intermittently rotating the mandrels, means for forming a reduced neck portion upon successive cylindrical tubes including a reducing die, a block slidably mounted in the machine frame, a main driving shaft, connections between the block and driving shaft, and a pick-off mechanism including

a tube fixed to the machine frame, a second tube arranged to telescope within the first tube and provided at its end with spring pressed hooks, and connections between the second tube and the reciprocatory block whereby the second tube is caused at each cycle of operations of the reducing mechanism to pass over a completed socket lining until the spring pressed hooks engage the lower end thereof, and to thereby remove the completed socket lining from its mandrel. 10

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