April 2, 1929. M. H. PADE 1,707,640

TUBE STRIPPING APPARATUS

Filed Sept. 10, 1926 2 Sheets-Sheet 1

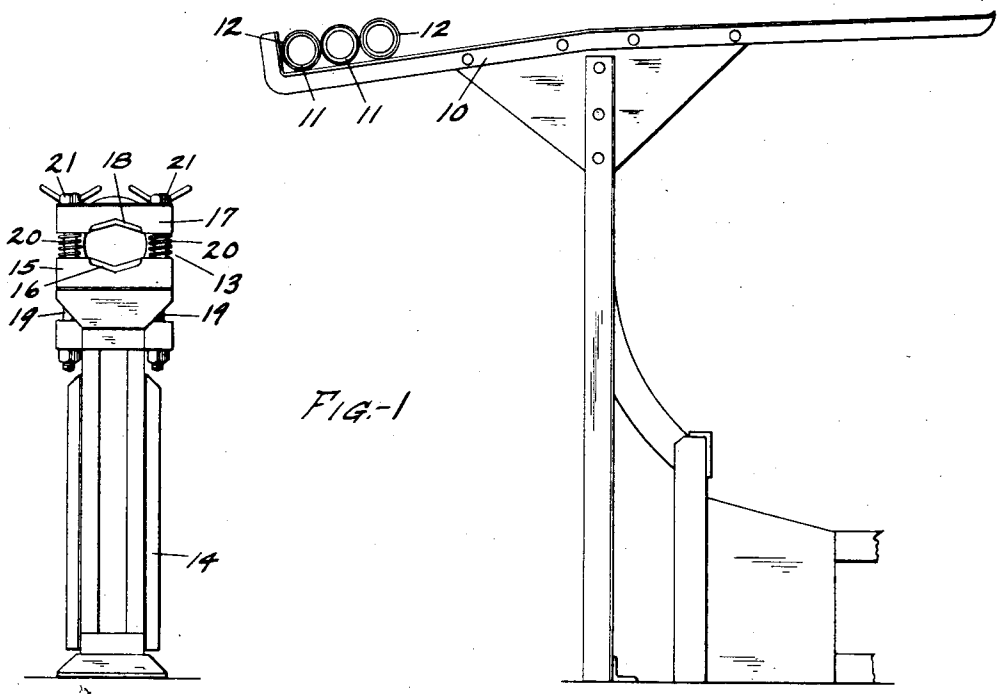


FIG.-1

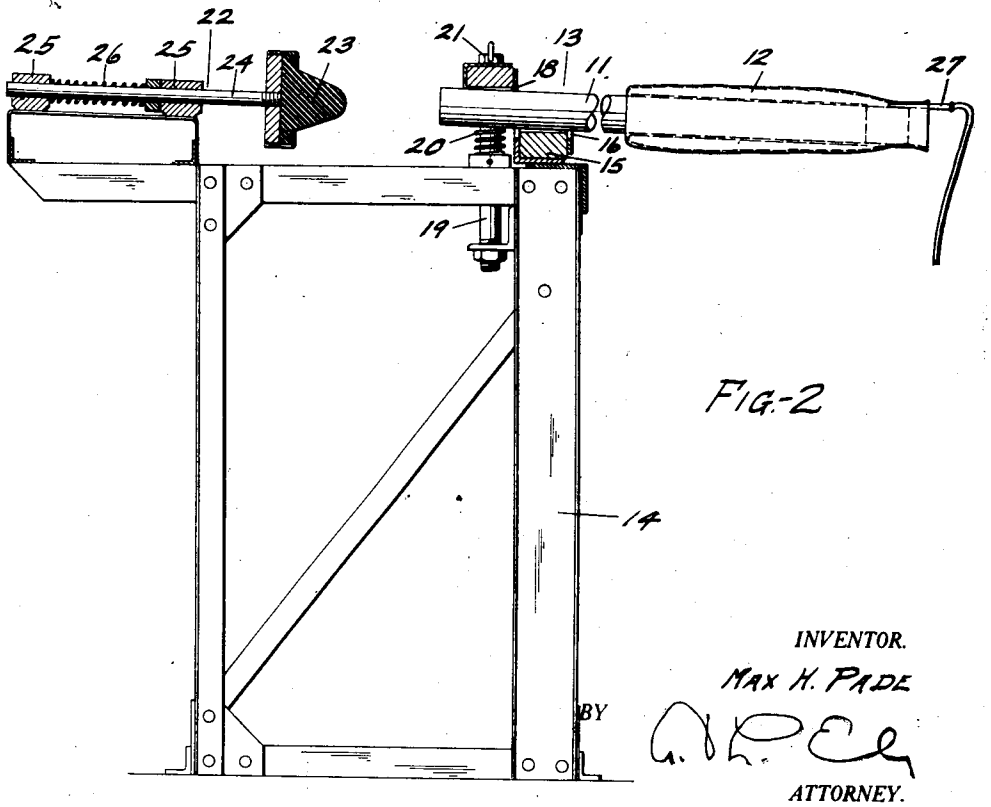


FIG.-2

INVENTOR.
MAX H. PADE
BY
ATTORNEY.

April 2, 1929. M. H. PADE 1,707,640

TUBE STRIPPING APPARATUS

Filed Sept. 10, 1926 2 Sheets-Sheet 2

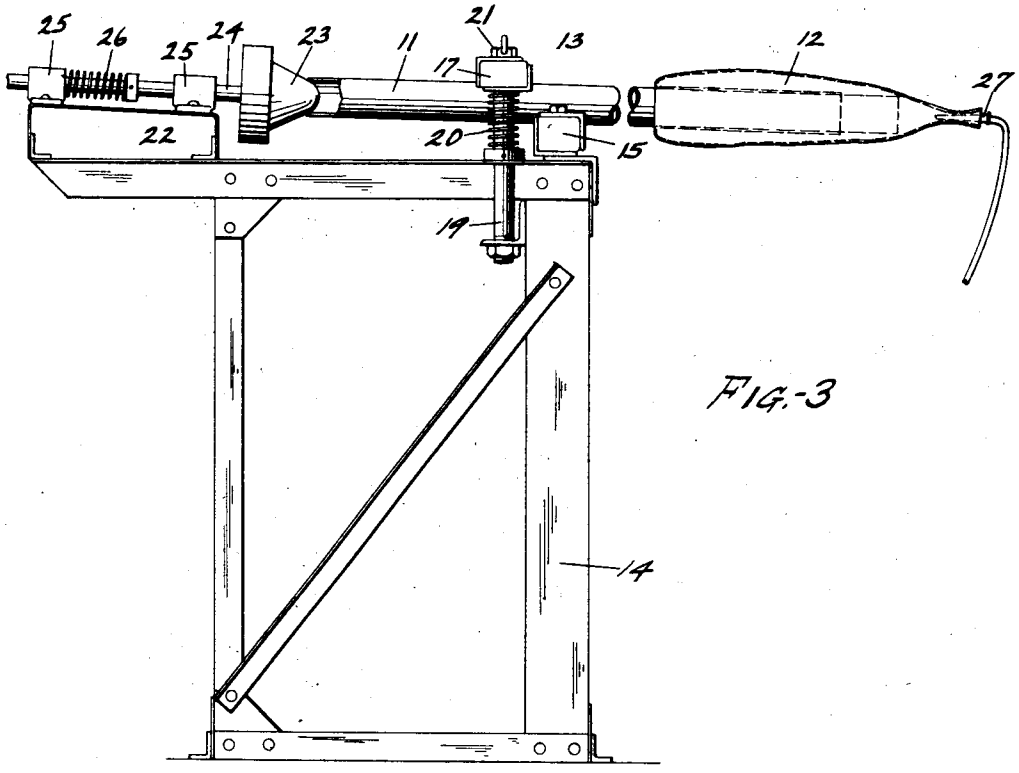


FIG.-3

INVENTOR.
MAX H. PADE
BY
ATTORNEY.

Patented Apr. 2, 1929. 1,707,640

UNITED STATES PATENT OFFICE.

MAX H. PADE, OF AKRON, OHIO, ASSIGNOR TO THE FIRESTONE TIRE AND RUBBER COMPANY, OF AKRON, OHIO, A CORPORATION OF OHIO.

TUBE-STRIPPING APPARATUS.

Application filed September 10, 1926. Serial No. 134,642.

This invention relates to tube stripping apparatus for use in rubber factories.

The general purpose of the invention is to provide an improved apparatus for use in stripping rubber tubes such as inner tubes from the hollow mandrels upon which they are formed or vulcanized.

Heretofore, the general practice has been to perform this operation manually, two operatives being employed, one reversely stripping the tube from the mandrel with the aid of an air pressure nozzle and the other holding the mandrel and plugging the end thereof opposite to that from which the tube is withdrawn to maintain the air pressure within the tube.

Various devices have been proposed to reduce the labor and expense incident to tube stripping operations but no device has heretofore been provided which is universally operable upon all sizes of mandrels. Moreover certain of these prior devices have depended upon the use of plugged mandrels. Plugging of the mandrels is disadvantageous in that certain vulcanization processes depend upon circulation of the curing medium through the mandrel.

The invention particularly has for its object the provision of a stripping apparatus which will enable a single operative to perform the stripping operation without the use of plugged mandrels.

The foregoing and other objects are obtained by the construction illustrated in the accompanying drawings and described below. It is to be understood that the invention is not limited to the specific form thereof shown and described.

Of the accompanying drawings:

Figure 1 is a side elevation of stripping apparatus embodying the invention;

Figure 2 is a transverse section through the stripping apparatus illustrating the first stripping operation; and

Figure 3 is an end elevation thereof illustrating the second stripping operation.

Referring to the drawings, 10 indicates a supply conveyor of a known type for delivering of hollow mandrels 11, 11 having tubes 12, 12 thereon to the stripping apparatus indicated generally by the numeral 13.

This apparatus comprises a suitable supporting frame 14 having mounted thereon a lower clamping bar 15 provided with a mandrel seat 16 and an upper clamping bar 17 off-set rearwardly from bar 15 and having an opposed seat 18. Bar 17 is adjustable on posts 19, 19 secured on frame 14, springs 20, 20 being arranged to urge bar 17 upwardly and wing-nuts 21, 21 being threaded upon posts 19 to adjust the bar 17 downwardly against the actions of springs 20. By the above arrangement, the end of a mandrel 11 may be inserted between the clamping bars and the whole mandrel is supported free with the exception of said end, the weight of the mandrel serving to hold it in place by the tendency of its free portion to rock the mandrel downwardly about bar 15 as a pivot. Positive clamping of each mandrel in place is thus avoided.

Placed on frame 14 rearwardly of clamping bars 15 and 17 is a plugging device indicated generally by the numeral 22 and comprising a substantially conical plug 23 of resilient material such as rubber supported on a rod 24 so as to be in alignment with a mandrel 11 inserted between members 15 and 17 whereby the end of a mandrel may be urged against the plug, the conical end of the latter entering the end of the mandrel. Rod 24 is reciprocable in bearings 25, 25 and a spring 26 is arranged to urge the plug 23 forwardly. Accordingly the plug 23 is yieldable rearwardly under the action of the end of a mandrel thereagainst, the spring 26 maintaining the plug with sealing pressure against the end of a mandrel.

In use, the stripping operative removes a mandrel from conveyor 10 and inserts an end thereof between members 15 and 17 as illustrated in Figure 2. This holds the mandrel so that he can then reversely strip the tube using the air nozzle 27 in the usual way until the reversely stripped portion extends to the other end of the mandrel. Then, in order to prevent the air from the nozzle blowing through the mandrel, the latter is lifted slightly and shoved into engagement with plug 23 sealing the mandrel and thus enabling the operative to complete the stripping operation as illustrated in Figure 3.

It will appear that the mandrel is held in both stripping positions by its own weight and can be easily inserted, moved from one position to the other and removed from the machine by a single stripping operative.

Modifications of the invention may be re-

sorted to without departing from the spirit thereof or the scope of the appended claims.

What is claimed is:

1. Apparatus for use in stripping rubber tubes from mandrels said apparatus comprising in combination off-set relatively adjustable upper and lower clamping bars adapted to receive the end of a mandrel therebetween and to clamp said mandrel in place by the reaction of the weight of the free portion of the mandrel therein, and a yieldably mounted plug in line with the end of a mandrel inserted between said bars and shiftable rearwardly thereby.

2. Apparatus for use in stripping rubber tubes from mandrels said apparatus comprising in combination upper and lower clamping bars adapted to receive the end of a mandrel therebetween and to clamp said mandrel in place by the reaction of the weight of the free portion of the mandrel therein, and a conical plug in line with the end of a mandrel inserted between said bars.

MAX H. PADE.