Jan. 5, 1932. G. W. BROWN 1,840,222

WRAPPING AND SEALING APPARATUS

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Fig. 12.

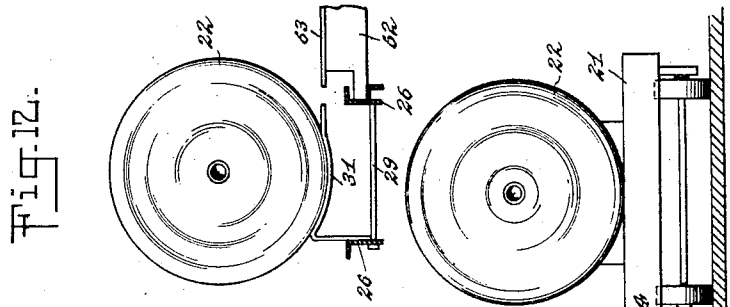
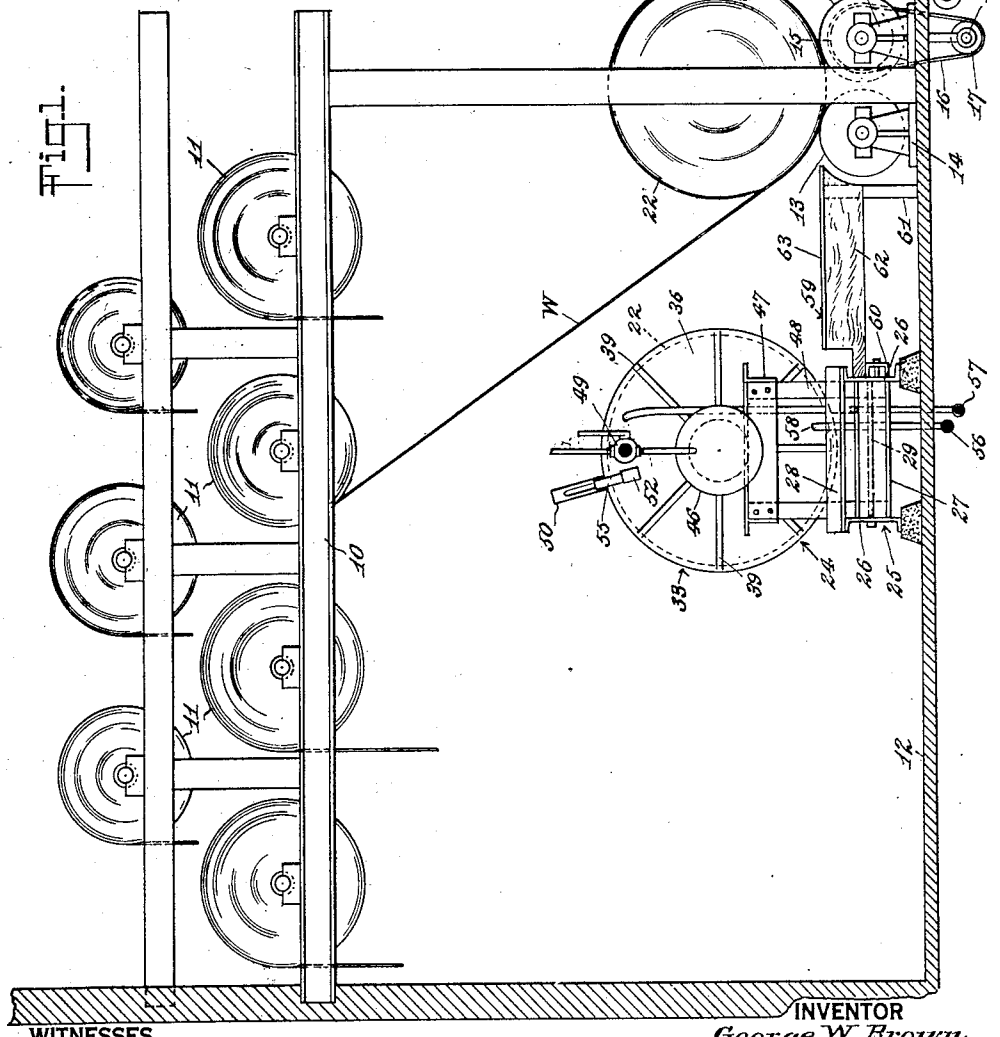


Fig. 1.



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WRAPPING AND SEALING APPARATUS

Filed June 18, 1930 4 Sheets-Sheet 2

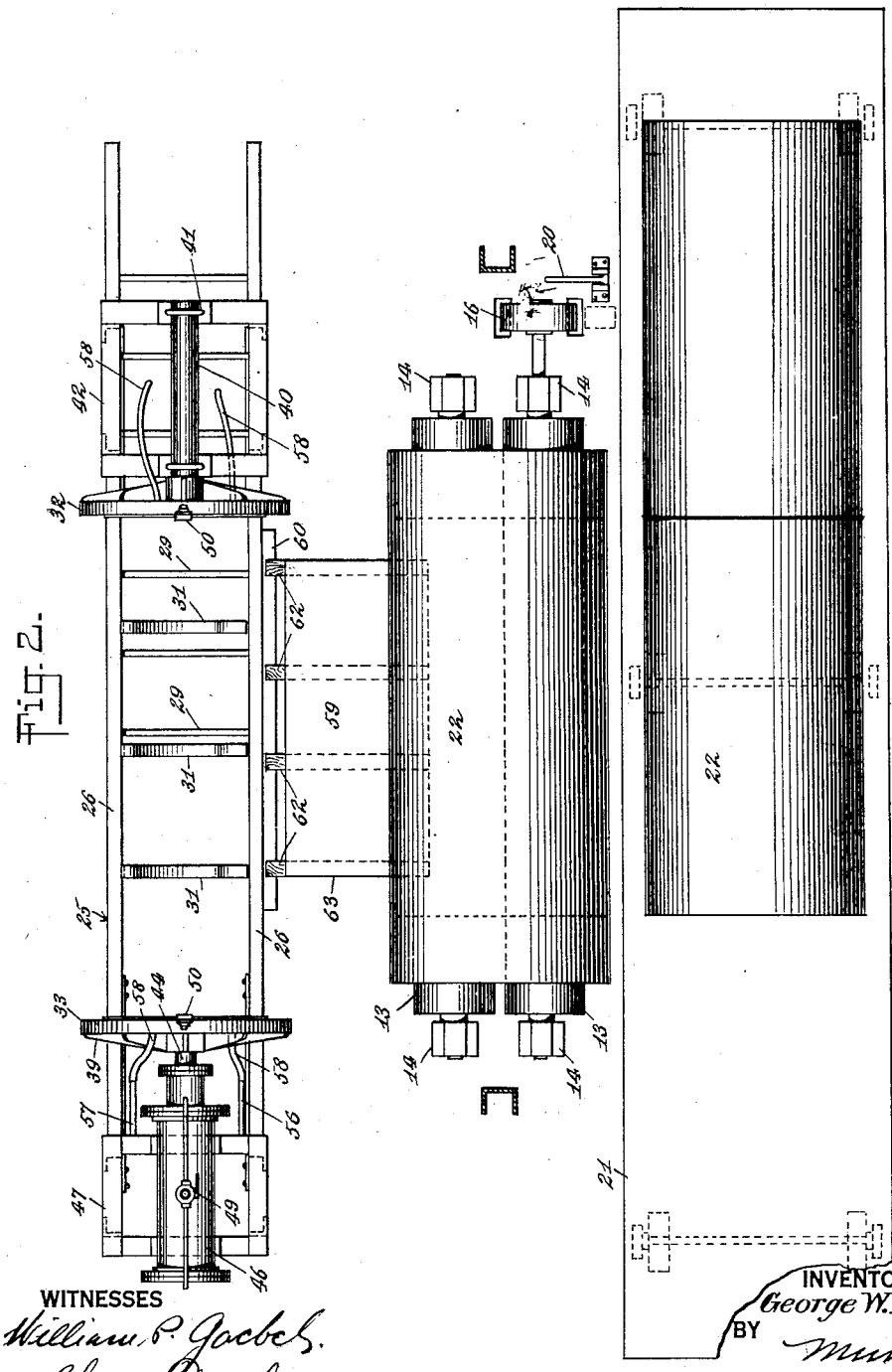


Fig. 2.

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WRAPPING AND SEALING APPARATUS

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Fig. 3.

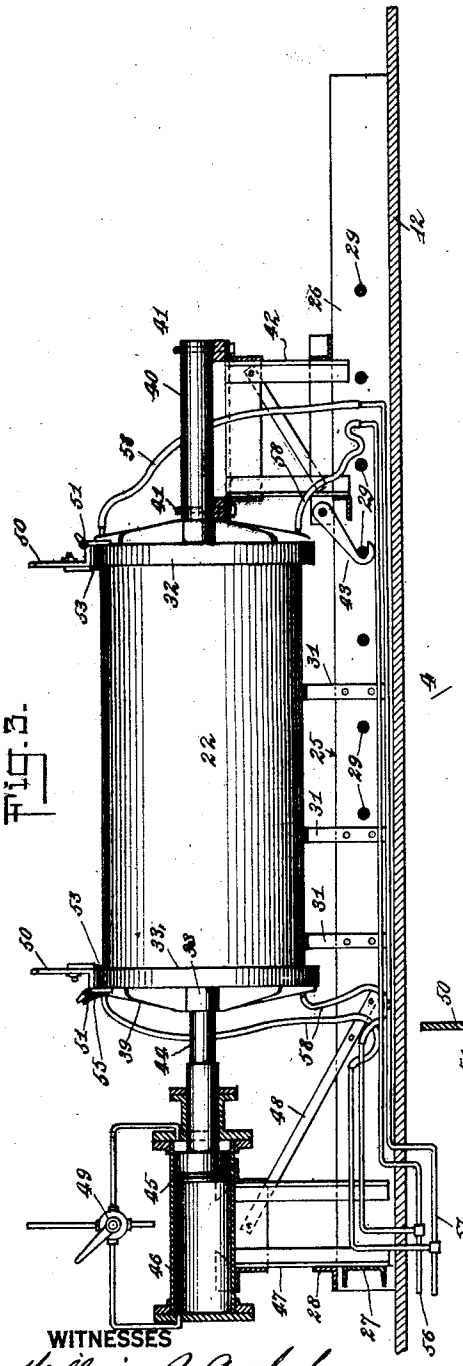


Fig. 5.

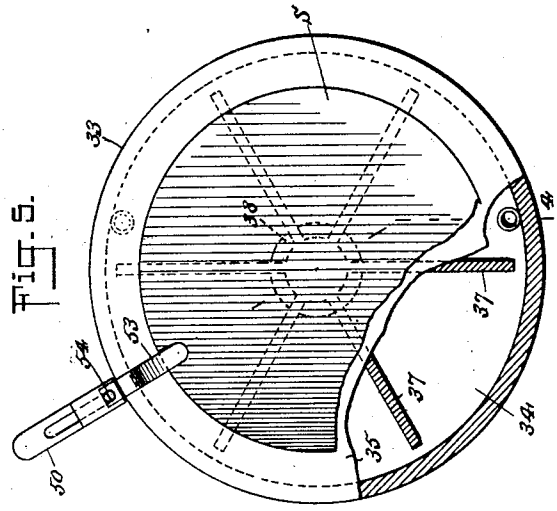
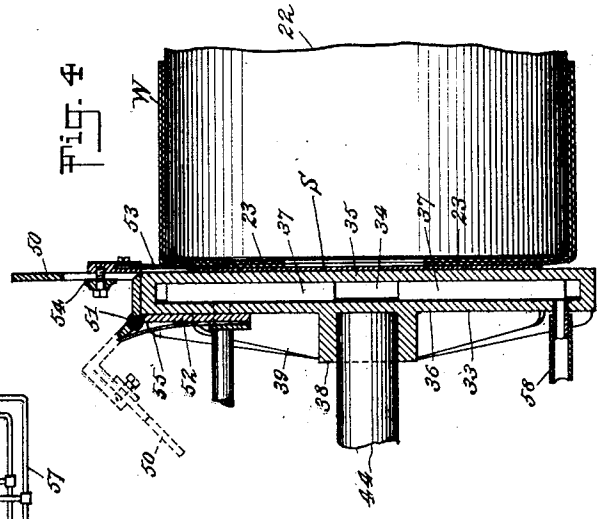


Fig. 4



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WRAPPING AND SEALING APPARATUS

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Fig. 6.

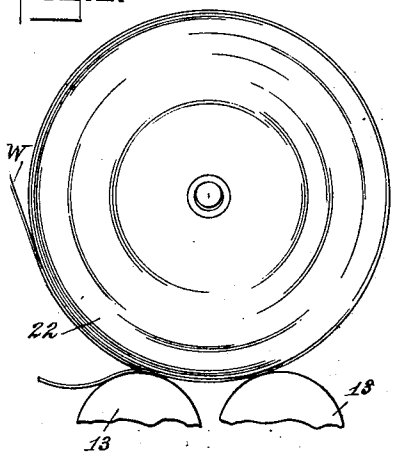


Fig. 7.

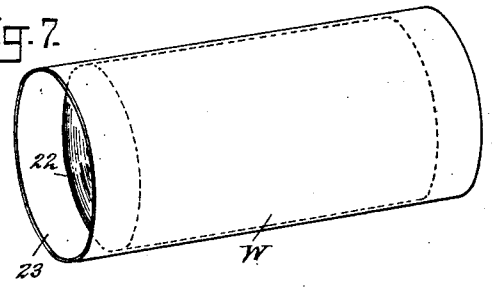


Fig. 8

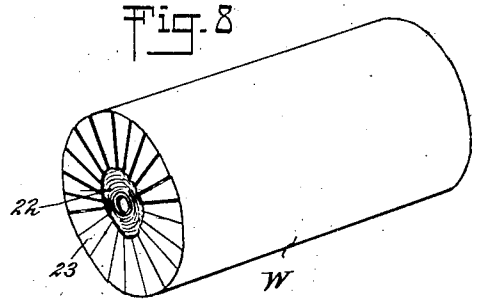


Fig. 9.

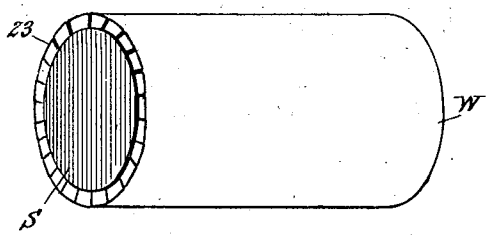


Fig. 10.

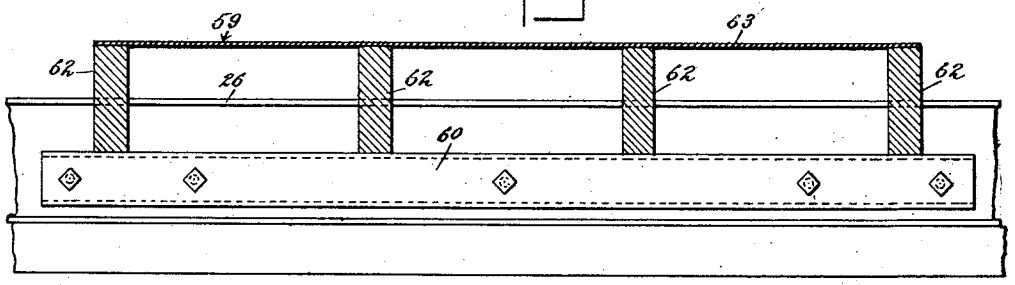
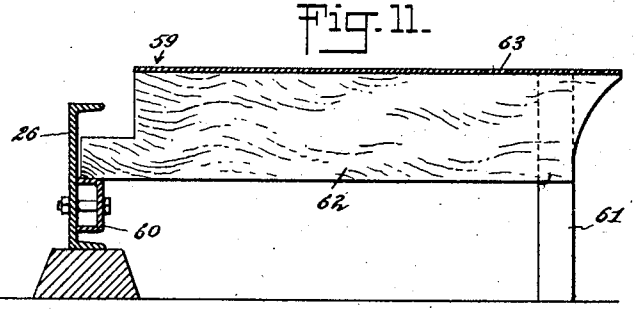


Fig. 11.



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Patented Jan. 5, 1932 1,840,222

UNITED STATES PATENT OFFICE

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WRAPPING AND SEALING APPARATUS

Application filed June 18, 1930. Serial No. 462,017.

This invention relates to an apparatus for wrapping and sealing rolls of material, such as rolls of print paper.

The principal object of the invention is the provision of an apparatus of the indicated character which facilitates the wrapping and sealing of large size and heavy rolls of material, such as newsprint paper, and the apparatus consists of the improved combination, construction and functions of the parts hereinafter fully described and illustrated in the accompanying drawings, in which

Figure 1 is a view illustrating an apparatus embodying the features of the present invention;

Figure 2 is a plan view showing certain features of the apparatus;

Figure 3 is a side view, partly in section, of the sealing press;

Figure 4 is a section on the line 4—4 of Figure 5 showing the pressure head of the press, and illustrating the manner in which one of the paper seals is applied to one end of the wrapped roll;

Figure 5 is a view looking toward the contact surface of the head shown in Figure 4 together with a seal held in place, and portions being broken away to show certain features;

Figure 6 is a view illustrating the manner in which a wrapper sheet is tucked between the first two convolutions or layers of the roll of material to be wrapped;

Figure 7 shows a wrapped roll of material in the first stage;

Figure 8 shows a wrapped roll in the second stage;

Figure 9 shows a wrapped roll in the third stage or one which is completely wrapped and sealed;

Figure 10 is a longitudinal section of the bridge used between the wrapping device and the sealing press;

Figure 11 is a transverse section of the bridge; and

Figure 12 is a transverse section of the roll cradle forming a part of the sealing press.

In order that the present invention may be fully understood, attention is now called to the fact that rolls of newsprint paper, which are of large size and heavy in weight, after being wound on the winder at the end of a paper machine, are enclosed in a wrapper which is sealed in order to protect the roll of material from damage resulting from careless and rough handling in transportation from the mill to the users.

In accordance with the invention, as shown most clearly in Figure 1, there is provided an overhead structure 10 on which is mounted numerous rolls of wrapping paper 11 of various kinds and colors. These rolls 11 are also of various widths, there being a lower series of rolls of wrapping paper which will be of greater width than the length of the rolls of material to be wrapped, and the upper series of rolls of wrapping paper 11 provide bands which may be used for banding rolls to be wrapped with color or extra reinforcing either at the end, in the center, or in any other manner at the time the broad wrapper is put on the roll to be wrapped. On a floor 12 below the structure 10 near one end thereof is a pair of co-operative wrapping rollers 13, each of which is mounted for rotation in suitable bearings 14 secured to the floor 12. One of the rollers 13 is positively driven in any suitable manner, such as by the employment of a pulley 15 on the shaft of the roller, a belt 16 which encircles the pulley 15, and a pulley 17 on a countershaft 18, driven from any suitable source of power. A belt tightener 19 including a hand lever 20 cooperates with the belt 16 to cause the rotation of the roller 13 and to stop the rotation thereof.

The rolls of material to be wrapped are transported from the wider of the paper machine to a truck 21 adjacent the wrapping rollers 13 by a chain hoist. A single relatively long roll of material may be transported, or one reel slit into a plurality of rolls while on the winder shaft, which reel will be placed upon the truck 21. This truck 21 is pushed along a path parallel to the axes of rotation of the rollers 13, and the roll or rolls of material on the truck are moved from the truck onto the rollers 13. The desired roll of wrapping paper 11 is selected and the free end thereof is tucked or pinched between

the first two layers of the roll to be wrapped, indicated 22, after which the driven roll 13 is operated causing the wrapping paper to be wound around the roll 22. The manner in which the wrapping paper is tucked between the first two layers is shown in Figure 6. The roll 22 is rotated slowly and the wrapping paper W is put on to the number of wraps or layers desired. The wrapping paper is then cut transversely and adhesive is applied to the free end. The next revolution of the roll firmly presses this end and pastes it in place. This is the first stage of wrapping, as shown in Figure 7. After this has been done, the projecting portions 23 of the wrapper at the opposite ends of the roll 22 are crimped against the ends of the roll by hand before the rotation of the roll 22 is stopped, as shown in Figure 8. If desired a header may be placed against each end of the roller 22 before the portions 23 are crimped. After this crimping of the wrapper has been accomplished there are provided on the opposite ends seals S in the form of disks or other shaped pieces of sheet material, such as heavy wrapping paper, which is accomplished in the manner presently to be described.

Use is made of a sealing press 24 which is arranged below the structure 10 adjacent the wrapping rollers 13, side by side in spaced relation with respect thereto. The press 24 includes a base structure 25 which is anchored to the floor 12. This structure 25 comprises longitudinal channels 26 connected together at one end by a transverse channel 27 and a transverse angle iron 28. Intermediate the ends of the channels 26, the latter are connected together by stay spacer bolts and sleeves 29 which are spaced equidistantly. A cradle is formed intermediate the ends of the channels 26 by the provision of transversely extending curved supports 31. The supports 31 are adapted to hold each roll of material 22 endwise on the base structure 25 between two heads, a head 32 at one end of the structure 25 and a head 33 at the opposite end of the structure. Each of the heads 32 and 33 is of similar construction, the same being hollow to provide a chamber 34 of circular shape, and also presenting a flat contact wall or surface 35 and a rear wall 36. Radial webs 37 are arranged between the walls 35 and 36 to give strength to the head. The rear wall 36 on the outside thereof has a hub or socket 38 from which radiate webs 39 to further strengthen the head. The hub or socket 38 of the head 32 has secured thereto a stout rod 40 which is secured or bolted as at 41 to a frame structure 42 slidable in opposite directions on the channels 26. It will therefore be understood that the head 32 will be adjustable longitudinally of the structure 25. In order to hold the head 32 in different positions of adjustment, or, in other words, to hold it from moving away from the head 33, the structure 42 is provided with hooks 43 which may be engaged with either one of the elements 29. The hub or socket 38 of the head 33 has secured thereto a rod 44 having a piston 45. The piston 45 operates in a cylinder 46 fixed or secured in any suitable manner to the top of a frame structure 47 secured to the channels 26 and the channel 27 and angle iron 28, said structure 47 being further braced by brace members 48 secured to the structure 47 and the channels 26. The piston 45 is operated by compressed air which is supplied from a suitable compressor including inflow and outflow connections leading to the cylinder 45, together with a four-way valve or cock 49, which may be operated to control the operation of the head 33. Each of the heads 32 and 33 is provided with a device which is designed and adapted to releasably retain a seal S adjacent or in contact with the wall 35 of the head. The device in the present instance comprises an L-shaped arm 50 hingedly connected as at 51 with a plate 52 secured to the wall 36 of the head, a spring finger 53 adjustably connected with the arm 50 as at 54, and a leaf spring 55 secured to the plate 52 which is engageable with the arm 50 when the latter is thrown back out of its retaining position, as shown most clearly in Figure 4. When the arm 50 is thrown to the retaining position, the spring 53 will exert pressure on the seal S and clamp it against the wall 35, and thus releasably retain the seal in place. It is to be understood that each seal S will have applied thereto a coating of adhesive before it is pressed into sealing engagement with the crimped portion 23 of the wrapper W.

In accordance with another feature of the invention the contact wall 35 of each of the heads 32 and 33 is heated, and this is accomplished by circulating steam through the chamber 34 of the head, there being provided suitable incoming piping 56 leading to the chamber 34, and outgoing piping 57 leading from said chamber 34, such piping including flexible connections 58 in order to allow movement of the heads 32 and 33. By heating the contact wall 35 of each head, the adhesive used on the seal S will be dried very rapidly, so that before the next roll from the wrapping rollers is ready, the wrapped and sealed roll in the press 24 can be rolled from the cradle onto a truck at one side of the press.

In order to transfer each roll after it has been wrapped by the action of the wrapping rollers 13 from the latter to the cradle or support 31 there is provided a bridge 59 which is arranged between the wrapping rollers 13 and the base structure 25 of the press 24. The bridge 59 may be of any suitable construction, and, in the present instance, comprises the channel 60 which is secured to one of the channels 26 of the structure 25, uprights 61,

and transverse members 62 of wood on which is secured a metal plate 63. The members 62 are secured to the channel 60. The uprights 61 are secured respectively to the two end members 62 and rest on the floor 12. The plate 63 is horizontally disposed at an elevation to readily receive the wrapped roll of material 22 as it is pushed from the wrapping rollers 13, said roll 22 traveling over the plate 63 onto the supports 31, to hold it disposed endwise between the heads 32 and 33.

From the foregoing it will be apparent that a roll of material may be transferred from the truck 21 to the wrapping rollers 13 and have applied thereto the proper wrapper and bands which may be selected from the rolls of material 11 on the structure 10, the rollers 13 being put into operation to accomplish the wrapping of the roll. The wrapper is then crimped and the roll is then ready to be sealed. The rollers 13 are stopped rotating, after which the wrapped roll 22 is transferred to the cradle supports 31 over the bridge 59. The seals S are then retained in place by the spring fingers 53 on the respective heads 32 and 33 and are coated with the adhesive. The head 32 is then brought to the proper adjusted position on the structure 25 in relation to the adjacent end of the wrapped roll. The valve 49 is then opened allowing air to enter the cylinder 46 to operate the piston 45 causing the head 33 to move toward the adjacent end of the wrapped roll, and in co-operation with the head 32 exerts the necessary pressure and application of heat to apply the seals S to the crimped portions 23 of the wrapper W thereby completely sealing the roll of material which may be subsequently removed onto a truck from the cradle supports 31 by bringing such truck in relation to the supports 31. In this manner a considerable number of rolls of material may be wrapped and sealed in a working day, requiring the attendance of only two or three operators.

What is claimed is:

1. In a press of the class described, a pressure and heater head mounted for axial movement, said head having a flat contact surface, and a device to releasably retain a piece of sheet material against said contact surface, said device comprising a member mounted on said head for movement in relation thereto into and out of a retaining position, and a thin flat material engaging means on said member which cooperates with said contact surface when said member is in the retaining position.

2. In a press of the class described, a pressure head having a flat contact surface, a member mounted on said head for movement in relation thereto into and out of retaining position, and a thin spring clip adjustably carried by said member to cooperate with said contact surface when said member is in the retaining position to retain a seal in place in relation to said contact surface.

3. In a press of the class described, the combination of a stationary supporting structure, a pressure head and frame assembly mounted for adjustment on said structure, and means to retain said assembly in different positions of adjustment, said means comprising cross members arranged at intervals on said structure, and hooks connected with said assembly selectively engageable with said cross members.

4. In a press of the class described, the combination of a stationary supporting structure, a pressure head and frame assembly slidably mounted for adjustment on said structure, and means to retain said assembly in different positions of adjustment, said means comprising cross members arranged at intervals on said structure, and hooks connected with said assembly selectively engageable with said cross members.

5. In a press of the class described the combination of a stationary supporting structure, a pressure head and frame assembly mounted for adjustment on said structure, and means to retain said assembly in different positions of adjustment, said means comprising cross members arranged at intervals on said structure, and hooks connected with said frame selectively engageable with said cross members.

6. In a press of the class described, the combination of a stationary supporting structure, a pressure head and frame assembly slidably mounted for adjustment on said structure, and means to retain said assembly in different positions of adjustment, said means comprising fixed members arranged at intervals on said structure below said frame, and hooks on said frame selectively engageable with said fixed members.

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