Mar. 20, 1923.

1,449,093

D. FINLEY

UNWINDER

Filed May 24, 1920

3 sheets-sheet 1

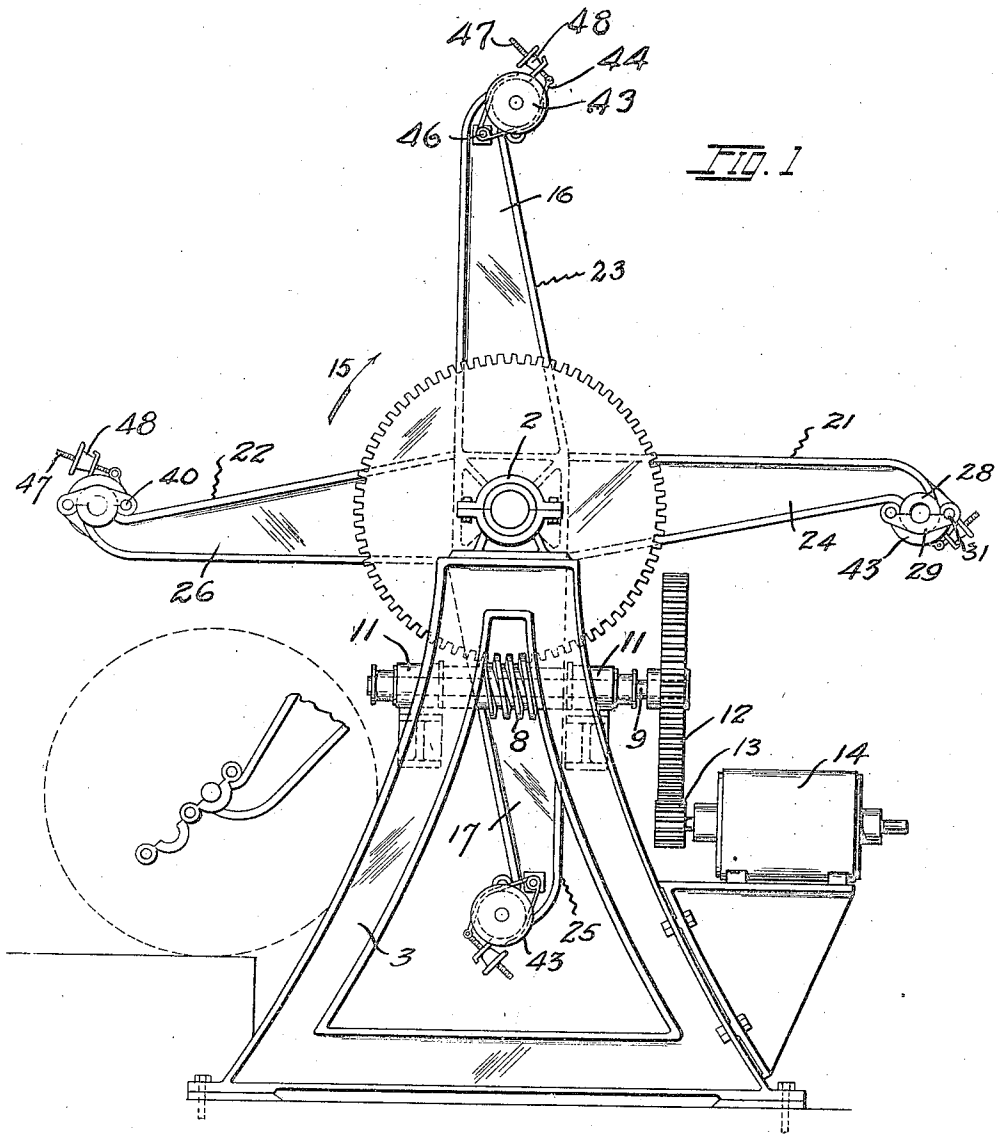


FIG. 1

WITNESS:
C. S. Evans

INVENTOR
DOZIER FINLEY.

BY White & Frost
his ATTORNEYS

Mar. 20, 1923.

1,449,093

D. FINLEY

UNWINDER

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3 sheets-sheet 2

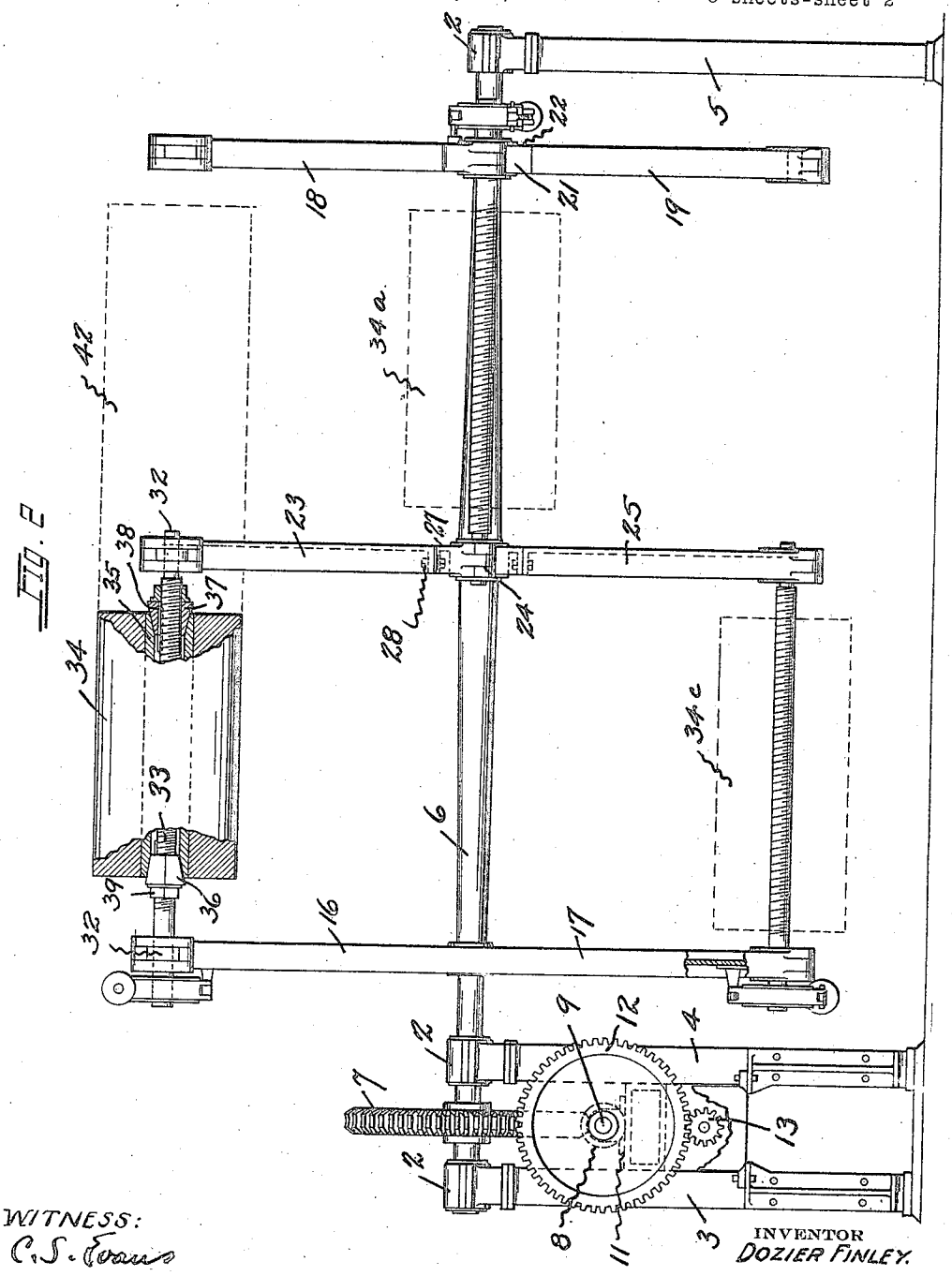


FIG. 2

WITNESS:
C. S. Evans

INVENTOR
DOZIER FINLEY.

BY White & Frost
ATTORNEYS

Mar. 20, 1923.

1,449,093

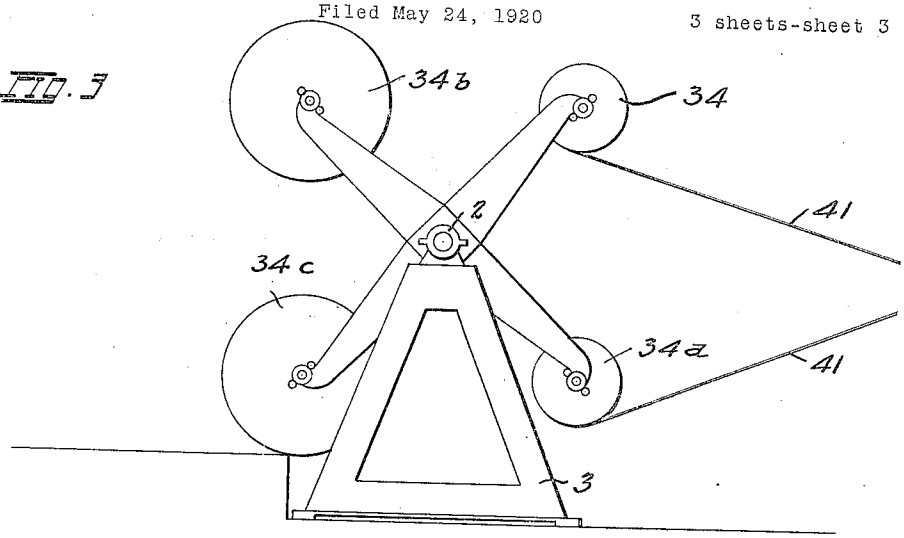
D. FINLEY

UNWINDER

Filed May 24, 1920

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FIG. 3



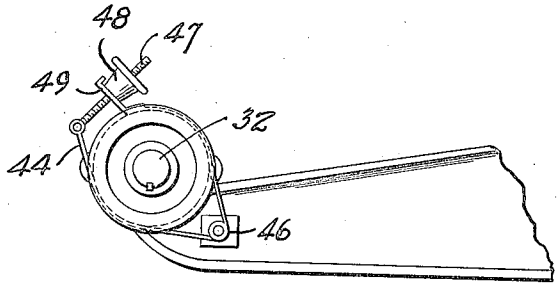
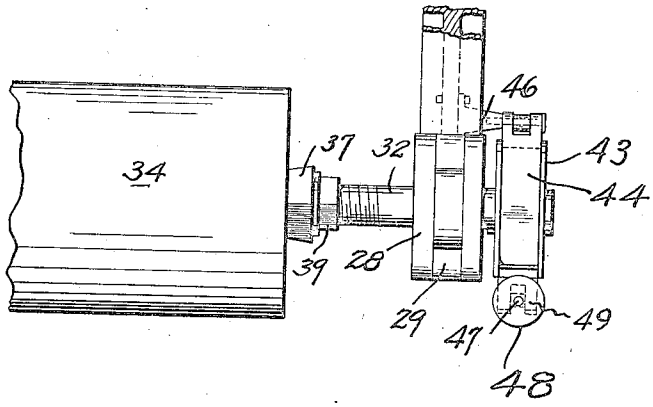


FIG. 4

FIG. 5



WITNESS:
C. S. Evans

INVENTOR
DOZIER FINLEY.

BY White & Post

ATTORNEYS

Patented Mar. 20, 1923. 1,449,093

UNITED STATES PATENT OFFICE.

DOZIER FINLEY, OF OAKLAND, CALIFORNIA, ASSIGNOR TO THE PARAFFINE COMPANIES, INC., OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF DELAWARE.

UNWINDER.

Application filed May 24, 1920. Serial No. 383,607.

To all whom it may concern:

Be it known that I, DOZIER FINLEY, a citizen of the United States, and a resident of Oakland, county of Alameda, and State of California, have invented a new and useful Unwinder, of which the following is a specification.

My invention relates to mechanism for holding supply rolls of material while the material is being unwound.

An object of the invention is to provide means for handling heavy supply rolls of roofing fabric from which material is being fed to the saturating machine. With the broad object of providing an apparatus to perform the duty indicated, lesser objects comprise the provision of a machine in which either narrow or wide rolls may be readily loaded, without manual lifting, and when loaded permitted to turn, under the control of an adjustable frictional brake, as the web is pulled into the saturating apparatus.

Another object of my invention is to provide an apparatus of the character described in which the supply rolls are so handled that a continuous web may be delivered to the saturating apparatus.

The invention has other features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of my invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood that I do not limit myself to the showing made by the said drawings and description, as I may adopt variations of the preferred form within the scope of my invention as set forth in the claim.

Referring to the drawings, Figure 1 is an end elevation of the unwinder, and Figure 2 is a side elevation thereof. Figure 3 is an end elevation of the unwinder in operation and loaded with rolls. Figure 4 is a side view of the end of one of the unwinder arms showing the brake drum and band. Figure 5 is a plan view of the structure shown in Figure 4.

In the manufacture of felt roofing the webs of felt are first made and then wound on wooden cores into rolls which may weigh a ton or more. These rolls are then loaded into my unwinder, in which they are rotatably mounted so that the web may be unwound as it is drawn into the saturating apparatus. Preferably I make the unwinder capable of handling at one time four narrow rolls, two of them being unwound to furnish web to the saturating apparatus, and the others being ready to be spliced on to the ends of the preceding rolls. That is to say, while two rolls are being unwound, two others are being loaded, and made ready to be swung into the position of the exhausted rolls, the vacant arbors being replaced with full ones, as fast as they are emptied.

Journaled in suitable bearings 2 arranged on the pedestal frames 3, 4 and 5 is a shaft 6. Frames 3 and 4 are spaced relatively close, and on the shaft between the bearings on these frames is fixed a worm wheel 7 in mesh with a worm 8 forming part of the shaft 9 journaled in bearings 11 fixed to the frames 3 and 4. The shaft is provided with a gear 12 meshing with the pinion 13 on the shaft of the motor 14, which is provided with an electrically operated brake. Thus the shaft 6 may be slowly rotated at will in the direction of the arrow 15 by starting the motor.

Fixed on the shaft 6 adjacent the frame 4 are arms 16 and 17 extending radially on opposite sides of the shaft. Fixed on the shaft adjacent the frame 5 are four similar arms two of which 18 and 19 are parallel to the arms 16 and 17, and the other two of which 21 and 22 lie in a plane perpendicular to the plane of the others. In Figure 2 arm 21 extends toward the observer, arm 22 lying on the the opposite side. Midway between the end arms are arranged four middle arms 23, 24, 25 and 26. Arms 23 and 25 lie in the same plane with the end arms 16, 17, 18 and 19, and arms 24 and 26 lie in the same plane with right end arms 21 and 22. In Figure 1, the end arms 21 and 22 are hidden behind the middle arms 24 and 26 respectively lying in the same

plane, and middle arms 23 and 25 are similarly hidden behind arms 16 and 17 respectively. The middle arms are removably secured to the hub 27 by bolts 28 so that they may be detached when desired, to leave a clear space between the end arms in order that a wide roll on a long arbor may be mounted on the arms 16—18 on one side and on arms 17—19 on the other.

In the side of each arm near its end is formed one-half of a bearing 28, the other half being formed in a cap 29 hinged to the arm by pivot pin 31. These bearings are adapted to receive the ends 32 of arbors 33, upon which the rolls of web 34 are mounted. In order to prepare a roll for the unwinder, an arbor is thrust through the central aperture of the core 35 on which the roll is formed, seating the pyramidal bushing 36 in the end of the core. A second pyramidal bushing 37 is then forced into the opposite end of the core to center and fix the roll firmly on the arbor. The bushings are slidably arranged on the arbors on splines 38 so that they turn with the arbor. A nut 39 threaded on the arbor next to each bushing provides means for exerting pressure on the bushings to seat them in the ends of the cores. Customarily the setting of the bushing 36 is not disturbed, only the bushing 37 being removed to seat a new roll. Thus the positions of successive rolls do not vary, and the webs are substantially in line for splicing. The roll with the arbor thus fixed and centered therein is then rolled close to the apparatus as indicated in Figure 1 so that a pair of empty arms as for instance 16 and 23 may be moved, by rotation of the shaft 6, under the ends 32 of the arbor to seat them in the bearings in the arms. The bearing caps are then closed down over the shaft and locked by pins 40. The arbor with its roll of roofing fabric is now journaled in the arms, which upon further rotation of the shaft 6 pick up the roll and carry it upwardly and around to the position in which it lies while the web is being unwound therefrom.

In Figure 3 I have shown the apparatus loaded with four rolls 34, 34^a, 34^b, and 34^c. The webs 41 are being drawn together from rolls 34 and 34^a and fed side by side into the saturating apparatus which saturates both webs at the same time. With the exhaustion of rolls 34 and 34^a, the motor is started and the arms turned through about 90°. This carries roll 34^b to the upper front position, and roll 34^c to the upper rear position, where their ends are spliced to the preceding webs. A new roll is now loaded into the arms to take the place of roll 34^a, and the arms are again moved through about 90° moving roll 34^b to the lower front position and the roll 34^c to the upper front position. Another roll is then loaded to take the place of roll 34. This cycle is repeated indefinitely. Thus rolls are picked up on each side of the apparatus alternately, with every quarter revolution of the shaft 6.

When it is desired to run a wide web through the saturating apparatus instead of two narrow ones, the bolts 28 are loosened and the middle arms are removed. The wide rolls of roofing fabric 42 are then arranged on long arbors, and picked up and rotatably journaled in arms 16—18 and 17—19 in a manner already made clear.

Means are provided for braking the rotation of the arbors so that a proper tension may be kept on the webs as they leave the rolls, and the rolls are prevented from turning, except as the webs are unwound from them. A flanged brake drum 43 is fixed on one side of each arbor, and when the arbor is within its bearings in the unwinder arms, the brake drum is encircled by the brake band 44, pivotally attached to a stud 46 fixed on the side of the arm. A screw 47 pivotally attached to one side of the brake band is engaged in the hand wheel 48 seated on the out turned flanged end 49 of the other side of the brake band which is slotted to receive the screw. Thus tension in the brake band is varied by turning the band wheel, to provide the desired degree of frictional resistance in the rotation of the supply rolls. When an arbor is exhausted, it is removed by loosening the hand wheel 48 sufficiently to permit it and the screw to be disengaged from the end 49. The ends of the brake band then spring apart, freeing the drum. The pins 40 are next removed and the bearing caps turned back to free the arbor.

Means are also provided for braking the rotation of the shaft 6 so that the arms may be brought to rest in the desired position, and so that the unwinder if unevenly loaded will not turn out of its set position on account of the unbalanced load. In the present case this is accomplished by the electrically operated brake incorporated in the motor in accordance with known practice. It is obvious without specific illustration that such a brake may be applied directly to shaft 6. In either case its function is the same, i. e., to provide a positive brake or lock to more accurately control the movement of the arms about the center of rotation.

I claim:

An unwinder comprising a shaft, a pair of alined arms radially arranged near the left end of said shaft, two pair of arms spaced 90° apart arranged near the right

end of said shaft, one pair of right arms being parallel to said left arms, a pair of arms parallel to said left arms removably connected to said shaft between said right and left arms, a pair of arms parallel to the other pair of right arms removably connected to said shaft between said right and left arms, arbors, and means on said arms for demountably journaling said arbors thereon.

In testimony whereof, I have hereunto set my hand.

DOZIER FINLEY.