(No Model.) 2 Sheets—Sheet 1.

B. F. CALDWELL.

MACHINE FOR FORMING METALLIC ROOFING INTO PACKAGES.

No. 347,991. Patented Aug. 24, 1886.

Fig. 1.

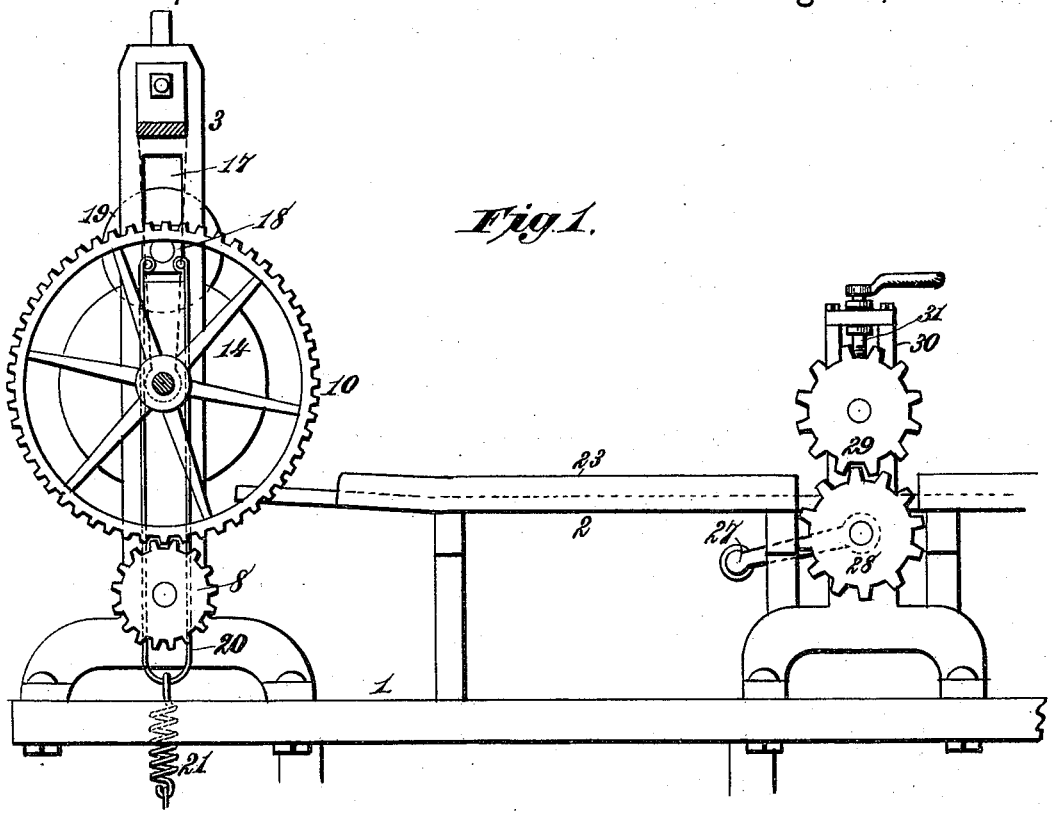
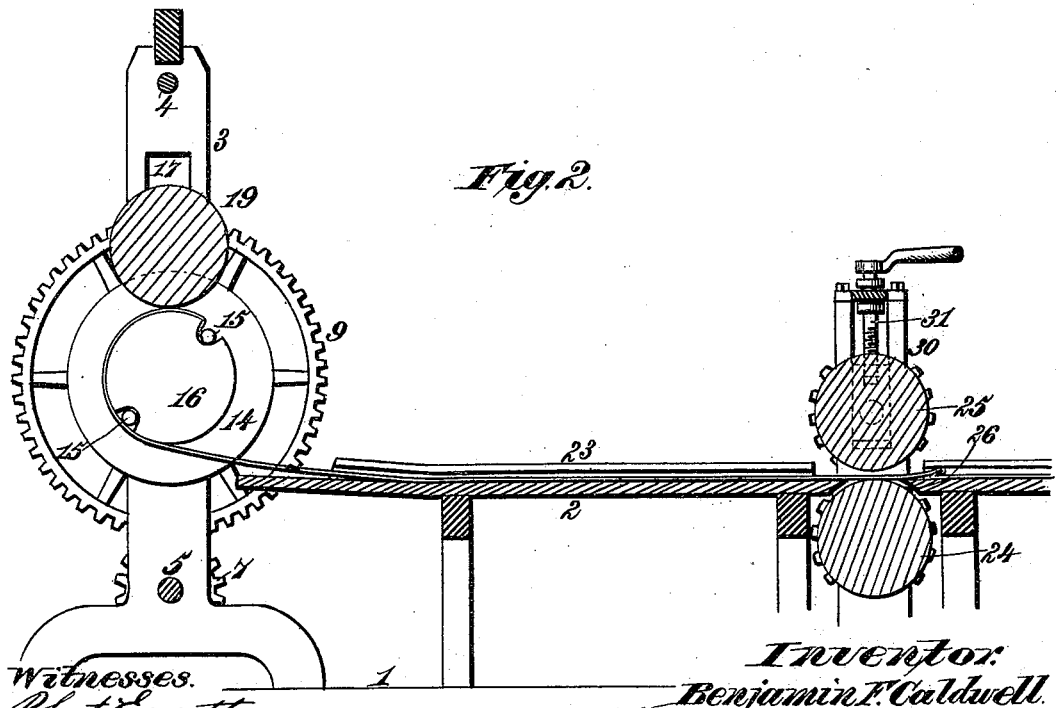


Fig. 2.



Witnesses.
Albert Everett.
Dennis Lumby.

Inventor:
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By James L. Norris.
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(No Model.) 2 Sheets—Sheet 2.

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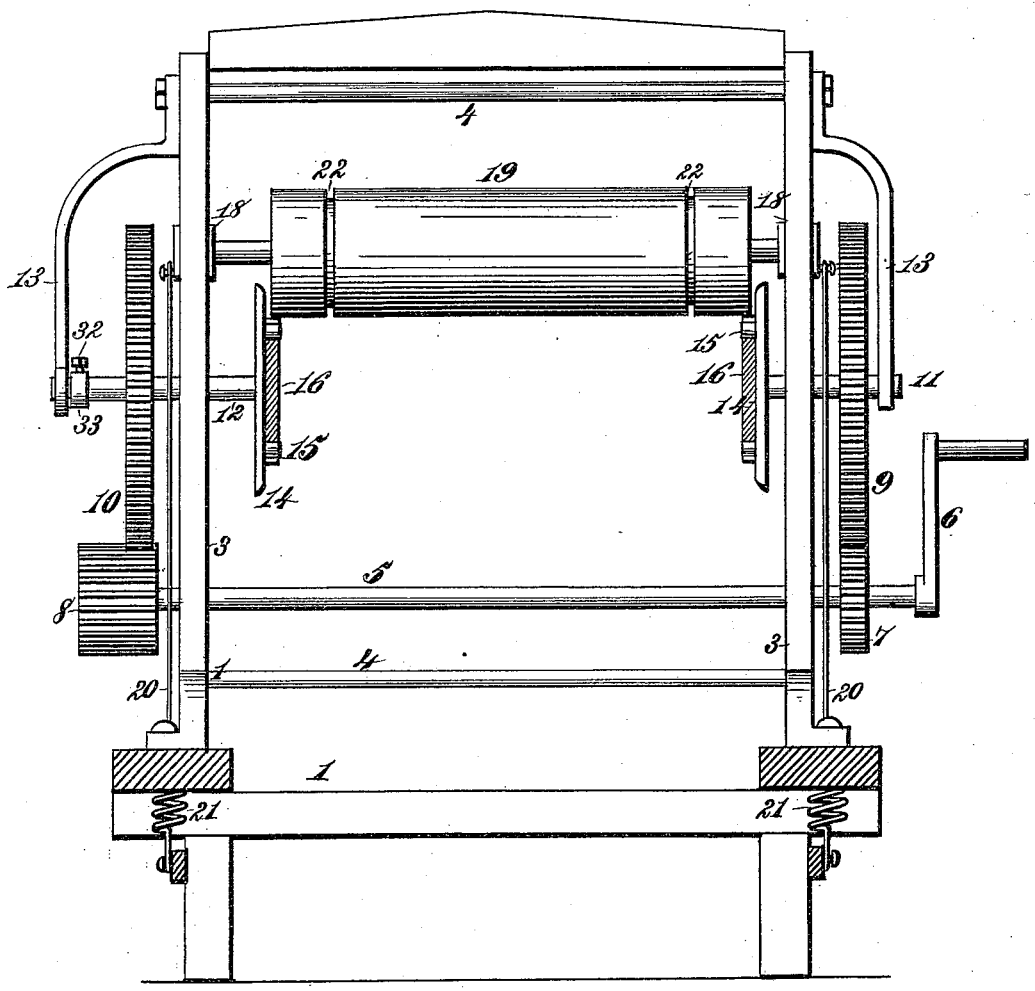
Fig. 3.



Witnesses.
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Dennis Bumby.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. CALDWELL, OF WHEELING, WEST VIRGINIA.

MACHINE FOR FORMING METALLIC ROOFING INTO PACKAGES.

SPECIFICATION forming part of Letters Patent No. 347,991, dated August 24, 1886.

Application filed March 9, 1886. Serial No. 194,634. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. CALDWELL, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented new and useful Improvements in Machines for Forming Metallic Roofing into Packages, of which the following is a specification.

This invention relates to a machine in which strips of metallic roofing are wound or rolled into compact cylindrical packages, closed at each end with a package-head, and with the usual caps, anchors, tools, &c., inclosed in said packages.

The invention comprises a machine consisting of a table or bed having edge guides and rollers for closing the lock-joints of the several pieces composing each strip, said strips being wound on wooden heads carried by rotary disks actuated by suitable gearing, and a yielding pressure-roller being arranged to hold the gradually-increasing package on said heads while the material is being rolled into the desired cylindrical form.

The invention consists in certain peculiarities in the construction and combination of parts, as hereinafter more fully set forth.

In the annexed drawings, illustrating the invention, Figure 1 is a side elevation of my improved machine for winding or rolling sheet-metal roofing-strips into cylindrical packages, and for locking the joints of the several pieces composing each strip or package. Fig. 2 is a vertical longitudinal section of said machine. Fig. 3 is a vertical transverse section of the same, the package being removed and the package-heads shown in section.

The reference-numeral 1 designates the frame of the machine, and 2 a bed or table supported by said frame.

At one end of the machine, on opposite sides, are standards 3, which are securely connected at top and bottom by brace-rods 4. In the lower part of the standards 3 is journaled a shaft, 5, which is provided at one end with a crank-handle, 6, and a pinion, 7, and at its other end carries a broad-faced pinion, 8, as shown in Fig. 3. The pinions 7 and 8 mesh, respectively, with gears 9 and 10, mounted securely on short shafts or arbors 11 and 12, one of which is journaled partly in each standard 3 and partly in brackets 13, secured thereto. To the inner end of each arbor 11 and 12 is secured a metallic disk, 14, having inward-projecting pins 15, which register with corresponding openings made in the wooden heads 16, on which the roofing-strips are to be rolled.

In the upper ends of the standards 3 are slots 17, for receiving the journal-boxes 18 of a vertically-yielding pressure-roller, 19. Each journal-box 18 is provided with a downward-extended rod, 20, or rods, connected to a spring, 21, which is secured to the frame of the machine in such a way as to cause the roller 19 to exert a yielding pressure on the sheet-metal strips while they are being wound or rolled on the wooden heads 16, as hereinafter explained. This pressure-roller 19 is provided near each end with a circumferential groove, 22, through which can be passed the bands or fastenings for securing the rolled sheet metal without incurring the otherwise necessity of raising the pressure-roller.

The bed or table 2 may be made to have a suitable inclination, as shown, and on each side is provided with an edge guide or gage, 23, for keeping the metal sheets or strips straight while being drawn along and rolled into packages.

By inclining the table 2, as shown, the feed of the metal strips is facilitated, so that they will be more readily wound on the package-heads 16, carried by the rotary disks 14.

At a suitable distance from the winding-disks 14 are placed rollers 24 and 25, for compressing and securing the lock-joints of the several pieces in each metallic strip before said lock-joints reach the winding mechanism. The lower roller, 24, is journaled in the frame of the machine, beneath a transverse slot, 26, so that its periphery will be on a level with the surface of the bed or table. The shaft of this roller is provided at one end with a crank, 27, and at each end of the roller-shaft is a gear, 28, meshing with similar gears, 29, on the shaft of the upper roller, 25, which is journaled in slotted standards 30, secured to the frame of the machine. In the upper end of each standard 30 is a set-screw, 31, for regulating the pressure of the upper roller, 25, and by which

the relative position of the rollers 24 and 25 can be adjusted so as to avoid pressure on the metallic sheets, except when a lock-joint is passing between said rollers.

In operating the machine the perforated or notched wooden heads 16, which are to close the ends of the package and be removed therewith, are placed in position on the pins 15, that project inward from the rotary disks 14. If desired, these wooden heads 16 may be provided with a connecting shaft or shafts, to which the usual caps, anchors, tools, and other accompaniments are to be secured; or if the heads 16 are employed without connecting-shafts the package of caps, anchors, and tools can be laid loosely between said heads and resting on the roofing-strip to be rolled thereon. The metallic roofing-strip is supported on the table 2, between the edge-guides 23, and its forward end is drawn beneath the heads 16 by hand, and then passed upward in front of and over the same, after which, by turning the crank 6, the disks 14 and attached package-heads 16 will be rotated, so as to gradually draw the metallic strip forward and wind it on said heads, thereby forming a cylindrical roofing-package, with its accompaniments or accessories inclosed therein. It will be observed that the roller 19 is so arranged as to hold the metallic strips on the heads 16 with a yielding pressure corresponding to the increasing size of the package, the roller gradually rising as the diameter of the package increases. The rotary disks 14 not only serve to carry the heads 16, but also act as guides to insure an even rolling of the metal strips.

The rollers 24 and 25 are so adjusted as to remain inactive, without exerting pressure on the metal strip, except when the lock-joints that connect the several pieces are passing. As the metal is of course thicker at these points, it then comes in close contact with both rollers 24 and 25, which then exert sufficient pressure to close the joints securely, and compress them to a level approximating the surface of the sheet or strip. While the joints are passing the rollers 24 and 25 said rollers may be actuated by the crank 27 to facilitate the feed. The connected pieces of metallic roofing are thus rapidly and neatly rolled into compact cylindrical packages containing the desired quantity of roofing with its usual accompaniments.

When the package is completed, its fastening-bands are passed through the grooves 22 of the roller 19, and then around the package and secured.

In order to facilitate the removal of the completed package from the machine, the arbor 12 is arranged to slide outward in its bearings, the broad-faced pinion 8 permitting this to be done without disengagement of the gear 10 from said pinion. By thus sliding outward the arbor 12 and attached disk 14 its pins 15 are disengaged from the holes or notches in the adjacent package-head, and the opposite end of the package can then be readily disconnected from the machine. The outward longitudinal movement of the arbor 12 may be effected by loosening a set-screw, 32, which is employed to normally secure a collar, 33, near the outer end of said arbor. It will be seen that when the collar 33 is made fast to the arbor, just within the adjacent bracket 13, as shown in Fig. 3, it will prevent the arbor and attached disk 14 from becoming disengaged from the package. When the set-screw and collar are loosened, however, the arbor 12 and attached disk can be moved outward to release the package and permit its removal. The removal of the completed package can also be facilitated by raising the pressure-roller 19, and for this purpose the said roller may be provided with a suitable lifting-frame.

It will be seen that by the use of this machine metallic roofing is rolled into cylindrical packages, having both ends closed by wooden heads, and with the caps, anchors, tools, &c., inclosed in the space between the package-heads 16, which thus form a part of the completed package, and serve to retain the inclosed accompaniments.

What I claim as my invention is—

1. In a machine for rolling metallic roofing-strips into headed packages, the combination, with rotary disks having pins for supporting the package-heads, of a yielding pressure-roller for holding the roofing-strips on said heads, said roller being provided with circumferential grooves 22, substantially as described.

2. In a machine for rolling metallic roofing-strips into headed packages, the combination of a table, 2, having guides or gages 23, standards 3, rotary disks 14, journaled to said standards, and having pins 15, a yielding pressure-roller, 19, having circumferential grooves 22, and means for rotating the disks 14 together, substantially as described.

3. In a machine for rolling metallic roofing-strips into headed packages, the combination of a table for supporting the roofing-strips, rotary disks for supporting the package-heads, and a yielding pressure-roller adapted to hold the metal strips on said heads and provided with circumferential grooves for passage of the fastening-bands, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN F. CALDWELL.

Witnesses:
ED. FLAHERTY,
W. F. PETERSON.