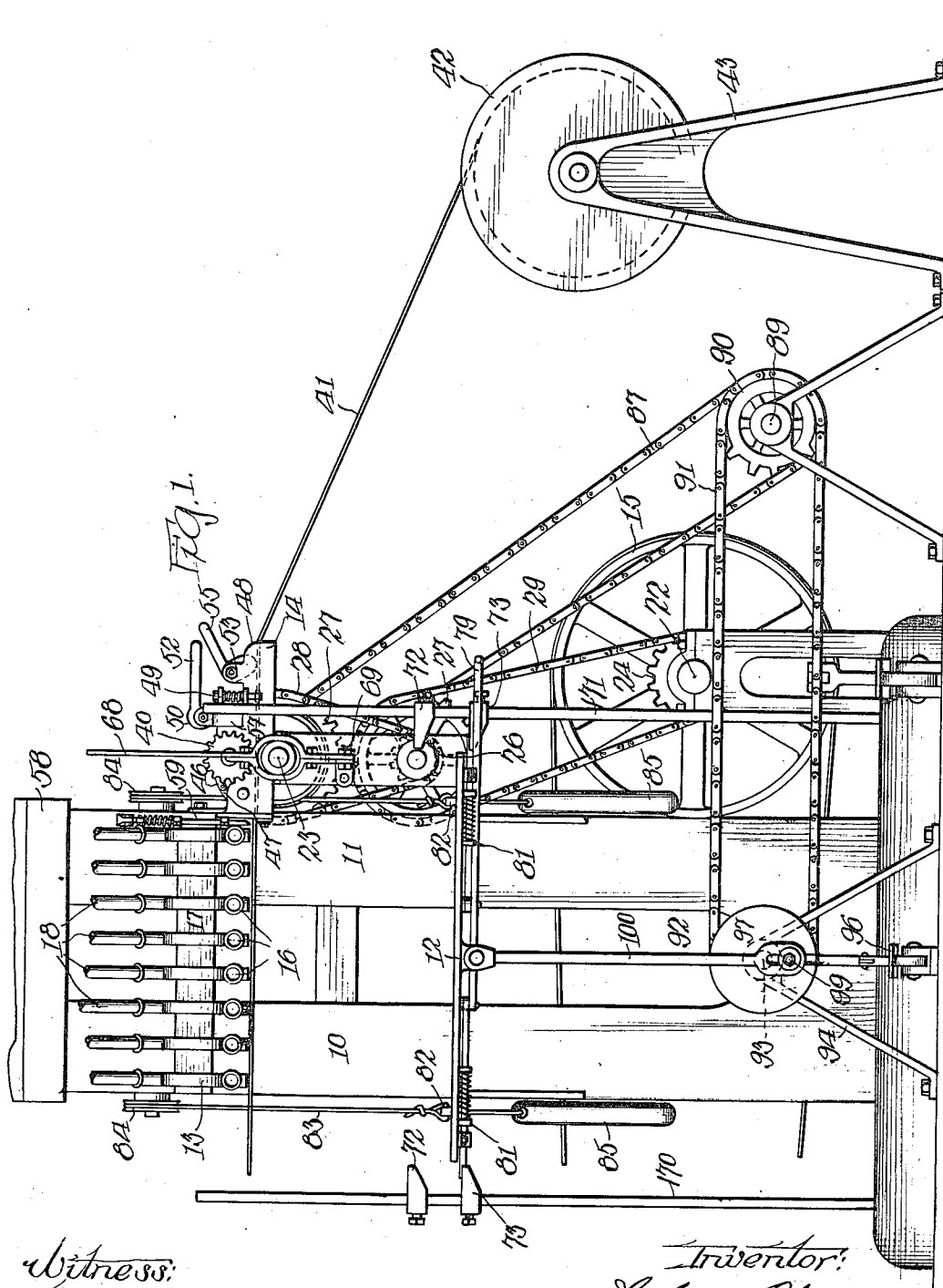


A. BLUEGE.
 HOOPING OR STRAPPING ATTACHMENT FOR BOX NAILING MACHINES.
 APPLICATION FILED SEPT. 11, 1916.

1,230,989.

Patented June 26, 1917.
 3 SHEETS—SHEET 1.



Witness:
 Leo. D. Mans.

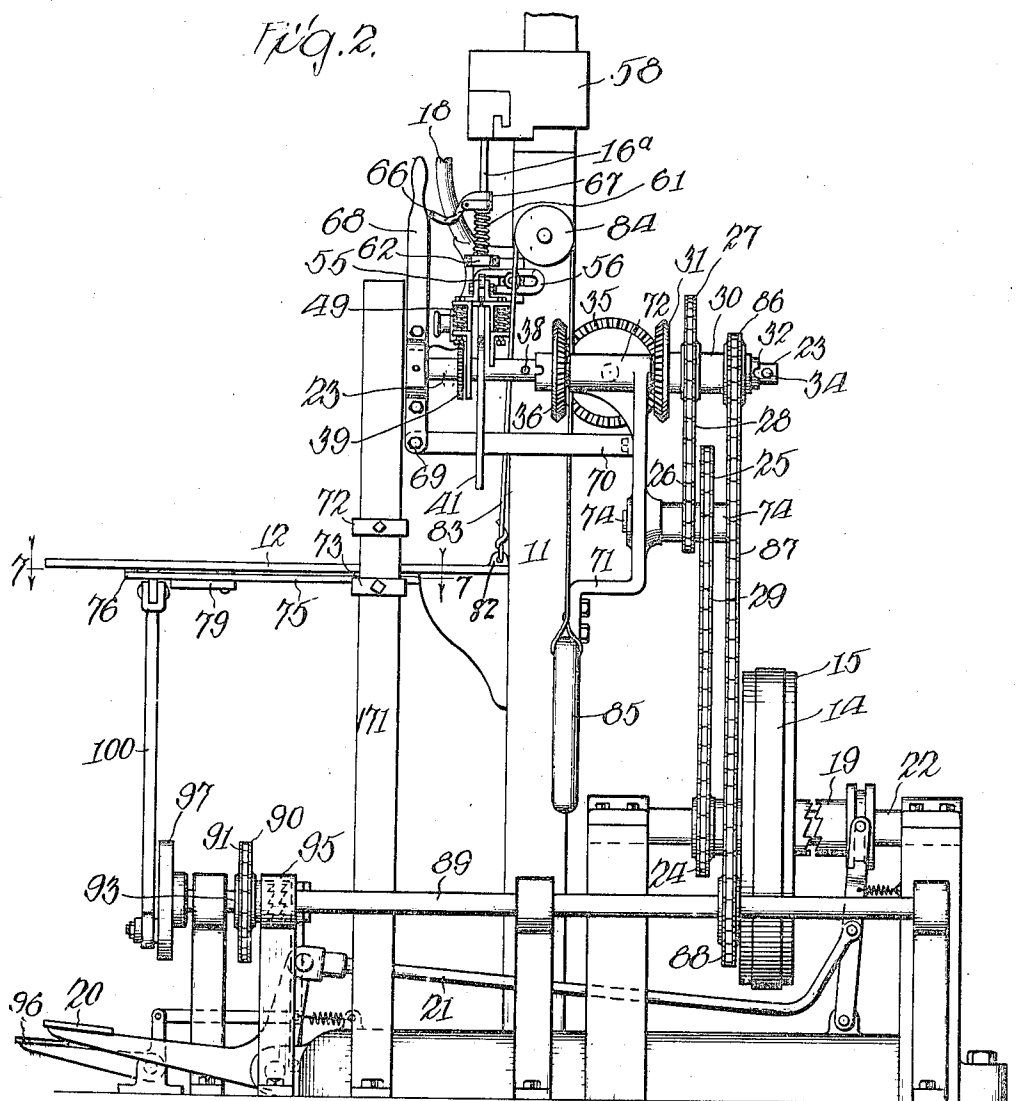
Inventor:
 Adam Bluege
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Witness:
Leot. DuMoulin.

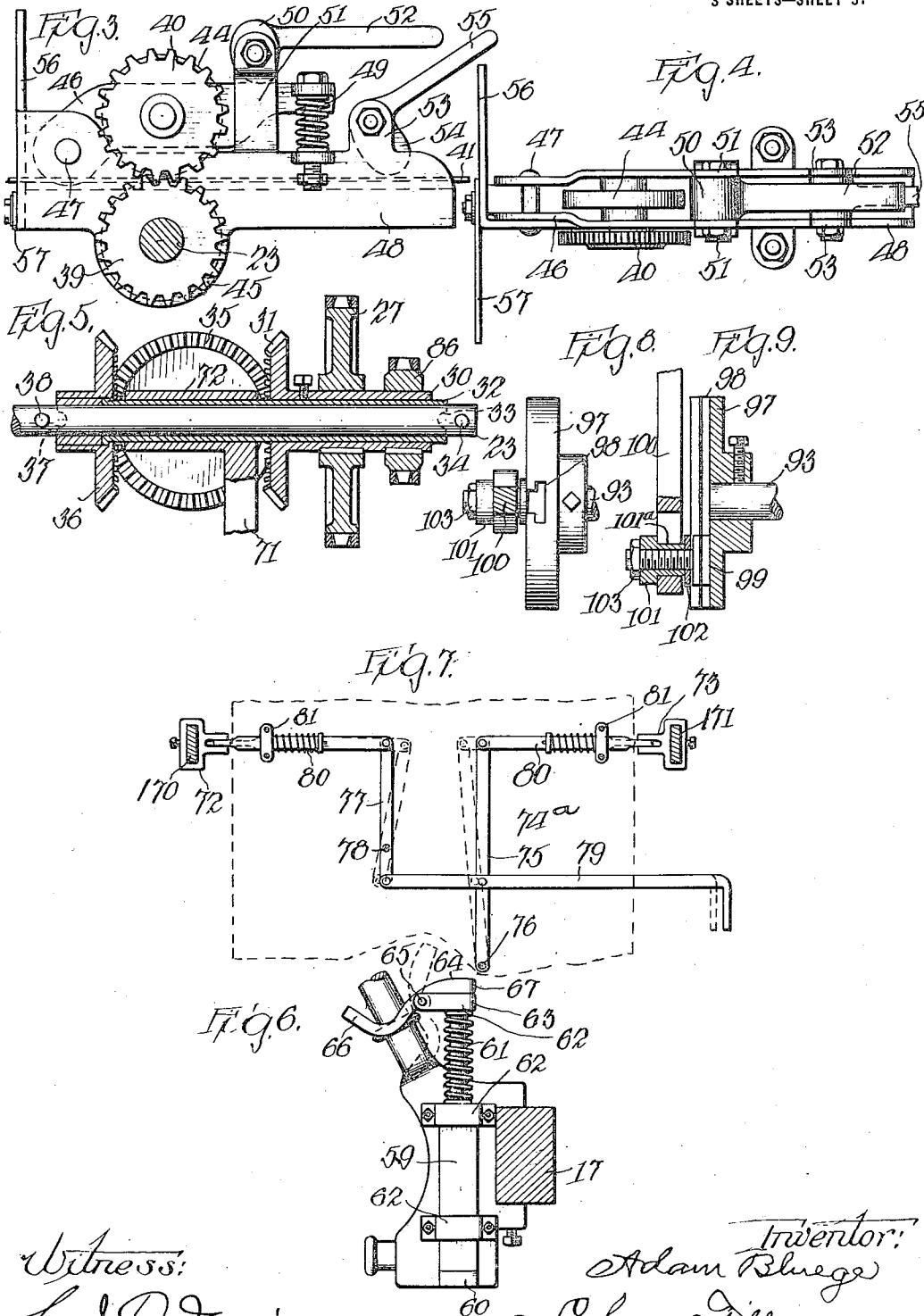
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Witness:
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Inventor:
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UNITED STATES PATENT OFFICE.

ADAM BLUEGE, OF CHICAGO, ILLINOIS.

HOOPING OR STRAPPING ATTACHMENT FOR BOX-NAILING MACHINES.

1,230,989.

Specification of Letters Patent.

Patented June 26, 1917.

Application filed September 11, 1916. Serial No. 119,395.

To all whom it may concern:

Be it known that I, ADAM BLUEGE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Hooping or Strapping Attachment for Box-Nailing Machines, of which the following is a specification.

This invention relates to improvements in hooping or strapping mechanisms for box-nailing machines, and has for its object the production of a simple and inexpensive means, whereby the strap or band which surrounds and binds the sides of the box to the ends thereof, may be properly fed into position under the nailing devices and sheared off to sever it from the reel from which it is fed when the desired length is reached. The device has also for its object the production of a means whereby the feed mechanism for the band may be reversed to take up any slack which might have been fed out, thereby, beyond the required length. An improved table raising and lowering mechanism is also provided, whereby, the same may be adjusted so that the nailing mechanism, which is limited in its movement, may be caused to operate successfully upon boxes of different dimensions. The device will be more readily understood by referring to the drawings, in which—

Figure 1, is a front elevation, showing the box-nailing machine having my invention applied thereto, the mechanism whereby the nails are fed to the hammers thereof being eliminated, as this portion forms no part of my invention.

Fig. 2, is an end elevation of Fig. 1.

Fig. 3, is a side elevation of the feeding and holding means for the strip or strap.

Fig. 4, is a top plan view of the mechanism shown in Fig. 3.

Fig. 5, is a detail of the driving and reversing mechanism employed for driving and reversing the device shown in Figs. 3 and 4.

Fig. 6, is a detail showing the shearing or cutting device which may be operated by the nail driving mechanism, and showing the means employed whereby the shearing or cutting operation may be controlled.

Fig. 7, is a sectional view taken on line 7—7 of Fig. 2 looking in the direction of the

arrows, the table upon which the box is placed which is to be bound and nailed being shown in dotted lines.

Figs. 8 and 9, are details of constructions employed in the table operating mechanism.

In the construction of the machine, to which I have shown my improvements applied, the sides of the box are presented to the nailing device one after the other, until all four or only three sides thereof are bound to the sections of the box by a metal strip which is fed to the nailing machinery. This strip is arranged to be severed from the reel, either upon the operation of the plunger of the nailing mechanism, or manually as found convenient and desirable. In the construction of the machine herein shown, the uprights 10 and 11, of the usual nailing machine, form a support for the table 12. These uprights may also support the nailing mechanism 13, and the strip or strap feeding mechanism 14. The table adjusting mechanism may be supported by the frame of the nailing machine or may be independently supported, as shown in the drawings. In Fig. 1, I have shown a plurality of nail chucks 16, which, may be moved longitudinally on the bar 17, to adjust the same, so that the nails will be driven into the edges of the ends of the box at the desired points. This bar 17 is conveniently supported by the uprights 10 and 11. These nail chucks are provided with the usual plungers which form the nail driving means, and are shown at 16^a in Fig. 2. The nail chucks are provided with flexible tube connections 18, which lead from the nail feeding or distributing mechanism (not shown) to the chucks 16. The driving mechanism employed in my invention, includes a pulley 15, the clutches 19, the foot lever 20, and the link connection 21. The pulley 15, is mounted upon a shaft 22, which is driven by said pulley, when the foot lever 20 is operated to throw the clutch into operation. The nailing mechanism and the strip feeding and reversing mechanism are conveniently operated from this shaft 22, this being accomplished through the medium of the sprocket wheels 24, 25, 26, and 27, and the cooperating chain connections 28 and 29. The sprocket wheel 27 is suitably keyed to a sleeve 30, which is provided at one of its

ends with a bevel gear 31. This sleeve 30 is arranged upon a tubular member 32 which extends from the gear 36, to near the outer end of the shaft 23. The gear wheel 36 and the sleeve 30 and the gear 31, respectively, are keyed or otherwise secured to this tubular member 32, and are preferably held against longitudinal movement. The sleeve 32 at the end remote from the gear 36, is provided with a recess 33, into which the pin 34 is adapted to be moved when the shaft 23, which is mounted for longitudinal movement, is moved toward the left of Fig. 5. When this shaft is moved in the direction just referred to, and the connection made, the same will be driven in a direction corresponding to that in which the gear 31 is driven. As before stated, this gear 31 is fixed to the sleeve 32, and this will cause the feed rolls or disks 44, and 45, to feed the strip between the box and the nailing devices, so that the same may fix the strap to the box when the nailing device is operated. By referring to Fig. 5 it will be seen that the bevel gears 31 and 35 are normally in mesh with each other, these gears 31 and 35, forming a convenient means whereby the nailing devices are operatively connected with the pulley 15, and it will be understood that any suitable mechanism such as a clutch, may be employed to throw the nailing mechanism into and out of operative connection with the shaft on which the gear 35 is mounted.

By referring to Figs. 1 and 2, it will be seen that the shaft 23, is provided with a lever arm 68 and that this lever arm is pivoted at 69, at one end of the forwardly extending arm 70. This arm 70 has its opposite end secured to the frame upright or member 71, which is rigidly mounted on one of the main uprights as 11. The uppermost portion of this upright is provided with a horizontal sleeve 72, which carries and supports the shaft 23, the tube 32 and the associated gear and sprocket wheels. This member 71, is further provided with a stud or jack shaft 74, which carries the sprocket wheels 25 and 26. When the shaft 23 which is carried by the portion 72, is in the position shown in Fig. 5, the same will be in a neutral position and the nailing devices only will be operated. When this shaft 23, is moved to the left, by the operation of the lever 68 and the pin 34 is caused to engage the recess 33 of the sleeve 32, this will cause the binding strip or strap 41, to be fed from the reel 42 by reason of the fact that the feeding rolls 44 and 45, are operatively connected with the shaft 23. By throwing the lever 68 in the opposite direction, a reverse motion will be imparted to the feeding rolls. This will draw the strip or strap 41, taut and cause the same to lie flat upon the sides of the box and will prevent buckling thereof when the nailing devices are operated. This reversal is caused by the pin 38 engaging the recess 37 of the gear 36 which it will be noted is in mesh with and is driven by the gear 35. This will cause a reverse motion to be imparted to the feed rolls and will accomplish the above-named end. It will be understood that the binding strip or strap 41, is fed from the reel 42, mounted on the standard 43. The shaft 23 is provided near the lever 68 with a gear wheel 39, which meshes with the gear wheel 40 and rotates the feed rolls 44 and 45, which causes the strip 41 to be fed toward or away from the nail driving machine. The gear wheel 40 and the disk 44 are designed to be separated from the gear and feed roll 39 and 45, when the strip 41 is initially inserted between them, or when the feeding operation of the strip is not desired. This means includes the pivot member 46 upon which is mounted the gear wheel 40 and the feed roller 44. This member 46 is pivoted at 47 to the frame 48, which is secured by the member 56 to the frame of the nailing machine proper. Coil springs 49 are employed and arranged between the opposite end of the member 46 and the frame 48, which tends to separate the feed rolls 44 and 45, and the gears 39 and 40. This separation is prevented by means of a cam 50 which is provided with a handle 52 and is secured by lugs 51 to the frame 48. When the cam 50 is in the position shown in Fig. 3, it will readily be seen, that the aforesaid gear and feed rolls, will be held in operative relation to each other, and when pressure on the handle 52 of the cam 50 is removed, the springs 49, will be permitted to act and cause the separation of said gears and feed rolls. Thus it will be seen, that a simple and inexpensive construction is provided, whereby the aforesaid gears and feed rolls may be readily thrown into and out of operative relation with each other. The frame 48 is further provided with lugs, such as 53, between which a cam 54, having a handle 55 is arranged. The object and purpose of this cam 54, is to prevent the strip or strap 41, from being withdrawn from between the feed rolls 44 and 45, when the cam 50 is operated, and the said rolls are separated from each other. A hand operated shearing mechanism 57, is provided upon the frame 48, at the end at which the strip 41 is emitted. The cutting mechanism is clearly shown in Fig. 6, of the drawings, and as therein shown, is attached to the side portion of one of the nail chucks, preferably to that one nearest the frame 48, which carries the feed rolls. This cutting mechanism includes a slidably mounted member 59 the lowermost end of which forms a cutting edge 60, and the uppermost end of the member 59 is provided with an

enlargement 63. The member 59, is held in position by means of the straps 62 between the uppermost one of said members 62 and the enlargement 63, a spring 61, reacts, which prevents the member 59 from intercepting the strip as it emerges from between the feed rolls. The construction of the upper end of the member 59, forms a convenient means whereby a member such as 64 may be secured. This member is arranged to be interposed and removed from between the upper portion 63 of the member 59 and the plunger 58 of the nailing mechanism, and is pivoted at 65, and consists of a handle 66 and an enlargement 67. It will be understood that the movement of the portion 58 of the nailing machine, normally is not sufficient to engage the end of the member 59, when the nailing operation is taking place, thus by interposing a member which is greater than the space between the lowest position of the nailing devices and the uppermost position of the cutting device, motion will readily be imparted thereto from the nail driving mechanism of any ordinary machine of this character. For the purpose of simplicity, I have shown and described the member 64, as being manually operated, but it can readily be seen that this may be done automatically when occasion demands. I further provide an adjustable table upon which the box may rest while being bound, which may be adjusted to compensate for boxes of different dimensions. This table is arranged for movement between uprights as 170 and 171, which are provided with a plurality of inwardly extending recessed projections 72, and 73, which may be engaged by the holding mechanism generally designated by the numeral 74^a and clearly shown in Fig. 7. This holding mechanism is composed of a lever 75 pivoted at 76 and a lever 77 pivoted at 78, which are connected together by means of the hand operated connecting rod 79. Each of the levers 75 and 77 is connected to one of the spring controlled catches 80, which is arranged to engage the members 72 and 73, provided upon the uprights 170 and 171. This entire lever mechanism is arranged upon the underside of the table 12 and is secured thereto by said pivots and straps 81. The operation of this holding mechanism is substantially as follows:—Upon inward movement of the member 79, the levers 75 and 77, will be operated and the spring catches 80, will be caused to disengage the projections 72 and 73, thus permitting the table 12 to be moved between the uprights by the means presently to be described. This table 12, is provided at the edge nearest the uprights 10 and 11 of the nailing machine, with eyelets such as 82, which form a convenient means of attachment for the cables 83, each of which cables has one of

its ends secured to the eyelet and extends upwardly over and around a pulley 84, and has its opposite end provided with a counterweight such as 85, the object and purpose of this arrangement being evident. Further provisions are made whereby the table 12 may be mechanically caused to be lifted and adjusted. This means includes the sprocket wheel 86, mounted upon the sleeve 30 of the gear wheel 31, and a chain 87, which extends outwardly and downwardly to the sprocket wheel 88, mounted on the shaft 89. This shaft is provided with a sprocket wheel 90, which is connected by means of a chain 91, to a sprocket wheel 92, provided upon the stud shaft 93. This stud shaft is carried by the bracket 94 and is provided with a clutch member 95 which may be operated by the foot-lever 96, to cause the shaft to impart motion to the stud shaft 93. At one end of this stud shaft 93 a disk 97 is secured. This disk 97 has one of its faces provided with a T slot 98 into which the stud 99 having a correspondingly shaped head is mounted. This stud extends through a connecting link, such as 100 which extends from the underside of the table 12 to the stud 99. This link 100 is slotted to receive the stud and shouldered member 101, and is provided for the purpose of more readily permitting adjustment of the parts. A sleeve 101^a is arranged upon the stud and has an enlarged portion which abuts against the link 100, the opposite end of this member 101^a, engages a washer 102, and as the nut 103 is tightened same will draw the enlarged portion of the member 99, against the sides of the slots 98 which securely holds the parts together. By this coöperation of the means just described, the table 12, may be mechanically adjusted to the proper height so that the nailing mechanism may readily operate upon boxes of various dimensions.

From the foregoing and by reference to the drawings, it will be readily understood and clearly seen, that the general operation of the attachment is substantially as follows; Assuming that the nailing mechanism is idle, but that power has been applied to the pulley 15, a ready made box may be placed on the table before or after the table has been properly adjusted, which adjustment may be mechanically performed by placing the foot on the lever 96, and thereby depressing the same, which operation will transmit motion from the driven shaft 89, through the clutch 95, to the stud shaft 93, and through its connections with the table to the latter, so that the same can be positioned at the proper place with respect to the nailing mechanism, where it can be firmly held by means of the spring controlled catches 80, engaging the recessed members 72 and 73, on the uprights 170

and 171, between which the table is located. Now, by throwing the lever 68, in the proper direction, the shaft 23, will be caused to rotate, when by turning the cam 50, to the position shown in Fig. 3, it is evident the gears 39 and 40 will be placed in mesh, and the feed rolls 44 and 45 approximated so as to clamp and feed the strap 41, across the upper surface of the box at or near one of its ends, when by releasing the cam 50 from the position shown in Fig. 3 it is obvious that the springs 49, will raise the pivot member 46, thus disengaging said gears and feed rolls. The nailing mechanism can now be thrown into operative connection with the gears 31 and 35, so as to fasten the portion of the strap extended across the box to the same. While thus fastening the said portion of the strip to the box, it may be held taut thereon and be prevented from being withdrawn from between the feed rolls 44 and 45, when they are separated by the movement of the cam 50, by depressing the handle or lever 55, which will cause the cam 54, to firmly hold the strip or strap. The nailing mechanism is now thrown out of operation, the handle 55, raised, the cam 50 again turned to cause the gears 39 and 40, to mesh, and the box is turned to present its adjacent side upwardly, when the above-named operations may be repeated, until the end of the box is entirely surrounded, if desired, by the strip which is fed from the reel 42, during which last nailing operation the shearing mechanism 59, will be thrown into operation to sever the strip which surrounds the end of the box from the remainder on the reel.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a device of the class described, the combination with a box nailing machine, of means for feeding a strip of metal to said nailing machine, and means for reversing the feeding means to withdraw said strip from said nailing machine.

2. In a device of the class described, the combination with a nailing machine, of means for actuating said nailing machine, means for feeding a strip to said nailing machine, and means to reverse the feeding means to draw said strip taut upon the work, said feeding and reversing means being operably connected to the nailing machine.

3. In a device of the class specified, the combination of a nailing machine, means for feeding a strip to said nailing machine, and means for reversing the feeding means whereby said strip may be drawn taut upon the work, said reversing means including a longitudinally movable shaft having means to operate said feeding means.

4. In a device of the class described, the

combination of a nailing machine, a mechanism for feeding a strip to said nailing machine, means for reversing said feeding mechanism to draw the strip taut upon the work, and means for driving said nailing machine and said feeding mechanism, said driving means including a plurality of gears normally in engagement with each other.

5. In a device of the class described, the combination of a nailing machine, a mechanism for feeding a strip to said nailing machine, means for reversing said feeding mechanism to draw the strip taut upon the work, and means for driving said nailing machine and said feeding mechanism, said driving means including a plurality of gears which are normally in engagement with each other and a longitudinally movable shaft having means for alternatively engaging two of said plurality of gears to operate said feeding mechanism in the normal or in the reverse direction.

6. In a device of the class described, the combination with a nailing machine, of means for feeding a strip to said nailing machine, said means including a pair of feed rollers between which said strip is passed and fed to the nailing machine, means for separating said feed rollers to suspend the feeding operation, said means including a bearing-frame pivoted at one of its ends and in which one of the rollers is journaled, a spring arranged to be compressed by said bearing-frame, and means to hold said frame against the spring tension and to release the same.

7. In a device of the class described, the combination with a nailing device, and means for operating the same, of a table mounted for adjustment with relation to said nailing device, said table having operative connections with the means for operating the nailing device, and means for controlling said connections.

8. In a device of the character described, the combination of a nailing machine, means for feeding a strip to said nailing machine, means for reversing the feeding of the strip to draw the same taut upon the work, said feeding means including a pair of gears each having a sleeve provided with a recessed portion, and a longitudinally movable shaft having pins arranged to enter the recessed portions of said sleeves whereby the feeding means may be operated in the normal or in the reverse direction.

9. In a device of the class described, the combination of a nailing machine having a movable nail driving mechanism, means for feeding a strip to the nailing machine, means for cutting said strip, said means being secured to a stationary part of the nailing machine and in the path of the movable nail driving mechanism, said cutting means being composed of a reciprocal member the

lower end of which has a cutting edge, a coiled spring arranged between the ends of said reciprocal member, said reciprocal member having an enlarged end, and a pivoted member secured to the said enlarged end, said pivoted member being arranged to be interposed between the upper end of the reciprocal member and the movable nail driving mechanism.

ADAM BLUEGE.

Witnesses:

CHAS. C. TILLMAN,
LYLLIAN PUZECK.