E. B. CROWLEY & E. J. GRANT.

SHINGLE PRESS.

APPLICATION FILED SEPT. 2, 1910.

997,649.

Patented July 11, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

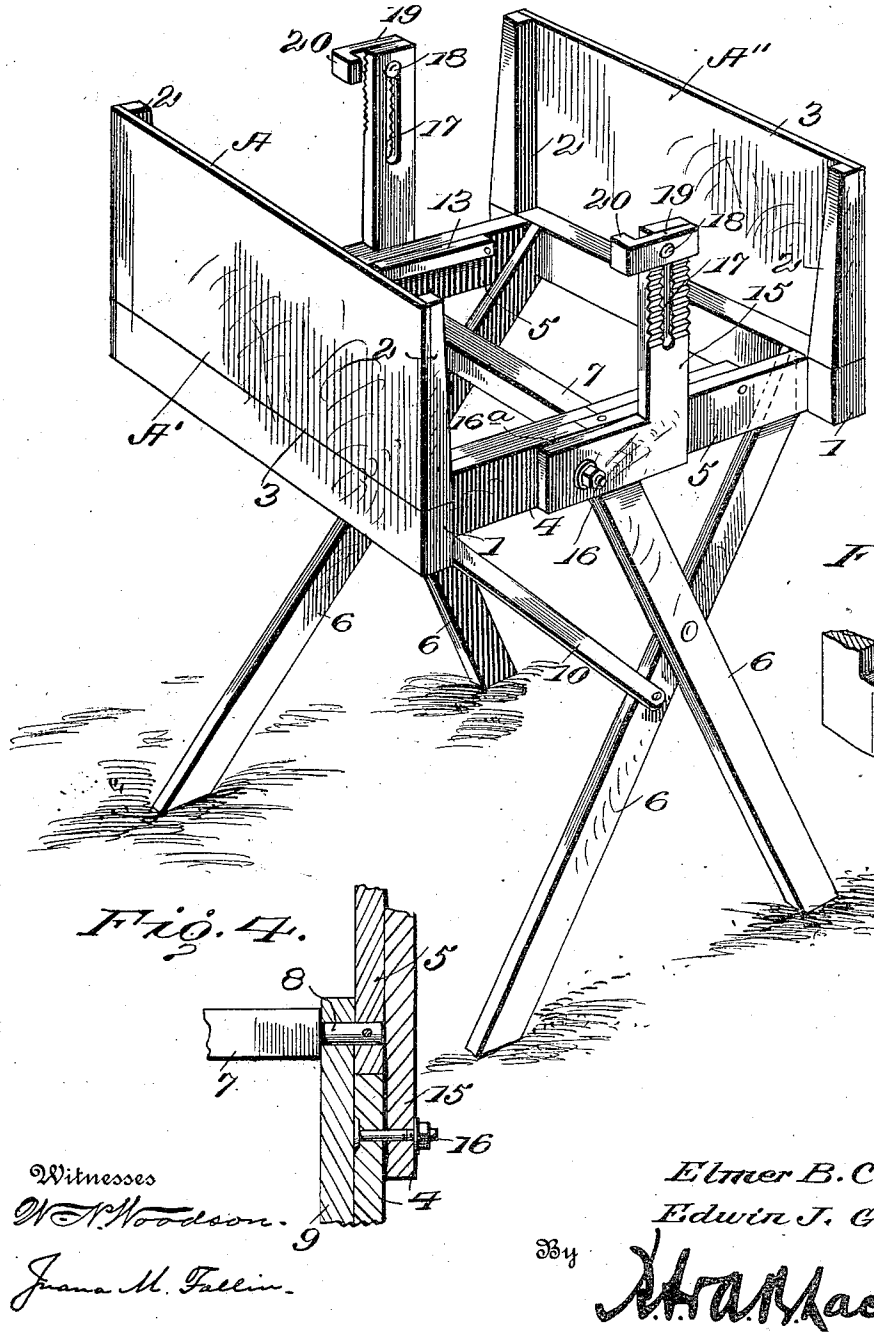

Fig. 5.

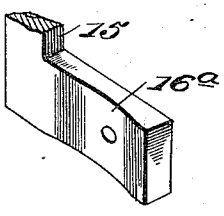

Fig. 4.

Witnesses

W. N. Woodson.

Juana M. Fallin.

Inventors

Elmer B. Crowley and

Edwin J. Grant.

By Strathacy, Attorneys.

E. B. CROWLEY & E. J. GRANT.

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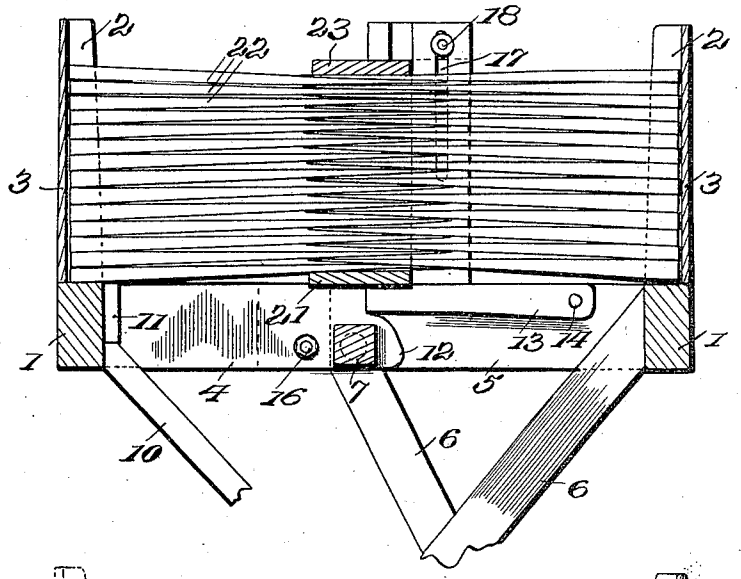
2 SHEETS—SHEET 2.

Fig. 2.



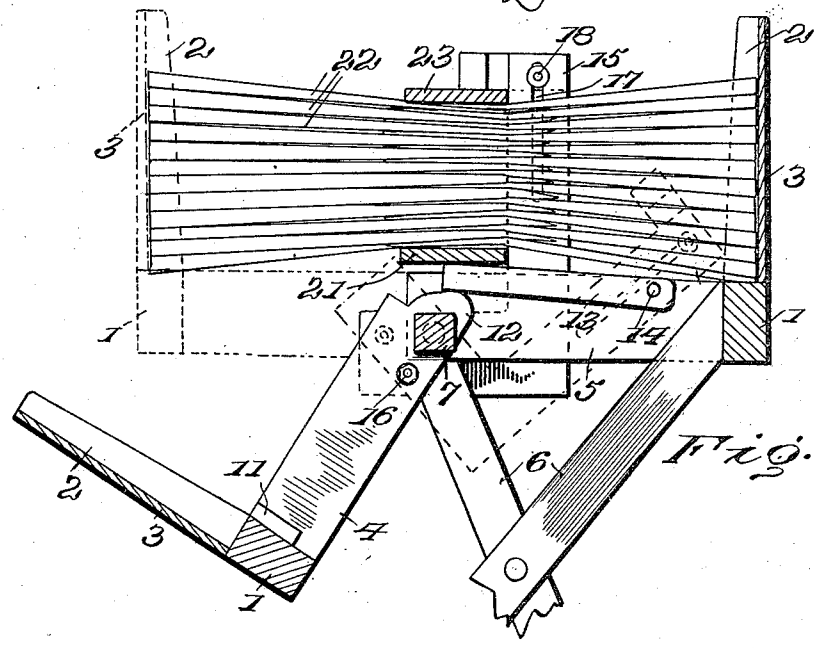


Fig. 3.

Witnesses

W. N. Woodson.

Joana M. Fallin.

Inventors

Elmer B. Crowley and

Edwin J. Grant.

By Wm. A. Macy, Attorneys

UNITED STATES PATENT OFFICE.

ELMER B. CROWLEY, OF GREENVILLE, AND EDWIN J. GRANT, OF SANDYPOINT, MAINE.

SHINGLE-PRESS.

997,649. Specification of Letters Patent. Patented July 11, 1911.

Application filed September 2, 1910. Serial No. 580,237.

To all whom it may concern:

Be it known that we, ELMER B. CROWLEY and EDWIN J. GRANT, citizens of the United States, residing at Greenville and Sandypoint, respectively, in the counties of Piscataquis and Waldo, respectively, and State of Maine, have invented certain new and useful Improvements in Shingle-Presses, of which the following is a specification.

This invention comprehends certain new and useful improvements in machines for use in bundling shingles or the like, and the invention has for its primary object a simple, durable and efficient construction of machine or apparatus of this character which will be composed of comparatively few parts that may be cheaply made and easily assembled and by the use of which the shingles or other articles to be formed into the bundles may be easily and tightly compressed by a simple movement of one part of the box or holder forming part of the apparatus, the compression acting from both top and bottom to secure a maximum effect.

The invention also has for its object a device of this type which is capable of adjustment, so far as the compressing devices are concerned, whereby the machine may be used with equal facility in forming bundles of different thicknesses.

The invention also has for an object a machine for forming bundles in which a part of the box holder is capable of being dropped or swung down to an inoperative relation to the other part, this swinging down of a section of the box effecting automatically the compressing operation and leaving the completed bundle with a portion projecting over the relatively stationary section of the box, whereby the bundle may be easily grasped and removed from the machine. And the invention has for a still further object to generally improve this class of devices and render them more efficient in use and commercially desirable.

With these and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements, and combinations of the parts that we shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of one form or embodiment of our invention; Figs. 2 and 3 are transverse sectional views through the machine, illustrating the parts in different relative positions; Fig. 4 is a fragmentary horizontal sectional view; Fig. 5 is a detail fragmentary perspective view of one of the compressing arms that are employed.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

My improved machine comprises a box or holder A which includes end sills 1 to which corner posts 2 are connected, vertically disposed ends 3 secured to the corner posts and end sills, and side sills which are constructed in sections having a pivotal connection with each other, said sections being designated 4 and 5, respectively. The sections 5 are relatively stationary sections, while the sections 4 are designed to have a pivotal movement about a horizontal axis. The apparatus may be supported in any desired way and in the present instance we have shown for this purpose cross legs 6 that are secured to the sections 5 of the side sills of the box. In the present embodiment of the invention, the box also includes an intermediate transversely extending brace bar 7, the ends of which are rounded and reduced, as best indicated at 8 in Fig. 4, said ends being pinned or otherwise secured to the relatively stationary sections 5 of the side sills.

Bolted or otherwise securely fastened to the inner or opposing faces of the relatively movable sections 4 of the side sills are side bars 9 which are mounted to turn at one end in vertical planes on the rounded trunnion ends 8 of the cross bar 7, whereby to effect the swinging movement of that section of the box which is composed by the relatively movable sections 4 of the side sills and their concomitant parts. By this means, as is evident, this section of the box, which is designated A′ in contradistinction to the complemental relatively stationary section A″, may be swung about the cross bar 7 as a horizontal axis and assume an upper position level with the relatively stationary

section, or be dropped down to substantially a horizontal position for a purpose hereinafter specifically specified. In order to hold the relatively movable section A′ in the box in its upper position, any means may be provided; but we have shown for this purpose a strut 10 which is pivotally connected to one of the legs 6 and which is designed for engagement with the end sill 1 of the relatively movable section of the box, being held properly against the same, as by a cleat or stop block 11, as best illustrated in Fig. 2.

Referring now particularly to Figs. 2 and 3, it will be noted that the inner ends of the side bars 9 are projected beyond their pivot ends and are formed with beveled extremities or cams 12 that are designed to ride upwardly underneath upwardly moving compressing fingers 13 that are pivotally connected to the inner or opposing faces of the sections 5 of the side sills of the box, as indicated at 14. Normally, with the relatively movable section A′ of the box in its upper position, these lower compressing fingers 13 will lie substantially flush with or above the upper edges of the sections 5.

Compressing arms 15 are carried by the respective sill sections 4, said arms in the present instance being angular or L-shaped, as best illustrated in Figs. 1 and 5, their base portions being pivotally connected to the sections 4 in an eccentric manner by bolts 16 or the like. Naturally, as will be evident from inspection of Fig. 1, the tendency of the arms 15 is to drop downwardly, that is, swing around the pivot bolts 16 in a direction to cause the upper ends of the arms to strike against and rest upon the corner posts 2 that are connected to the end sill 1 of the relatively stationary section A″ of the box. This tendency is normally prevented by the frictional engagement of the base portions of the arms 15 with the adjoining outer faces of the sections 4 and 5 of the side sills when the latter are in horizontal alinement with each other; but it is to be particularly noted that at the pivot bolt 16, the inner face of the base portions of the arms 15 are slightly cut out, or rounded, as indicated at 16ª, whereby when the sections 4 are permitted to swing down, the frictional engagement of the inner faces of the base portions of the arms 15, with the outer faces of the sills will be reduced to a minimum, and the arms will have a tendency to swing in the direction above noted, as will be more specifically described hereinafter in connection with the description of the operation of the apparatus.

Preferably, the upper or vertically extending portions of the arms 15 are formed, respectively, with longitudinally disposed slots 17, and set screws 18 are accommodated in said slots, said set screws being secured to upper compressing fingers 19. The inner faces of these fingers and the adjoining faces of the arm are preferably roughened, as clearly illustrated in the drawings, whereby the parts may be securely held together and all liability to displacement prevented. The fingers 19 extend beyond one side edge of the respective arms 15 and are formed with off-set extremities 20, as best illustrated in Fig. 1.

In the practical operation of our improved machine for use in bundling shingles or the like, the parts, at the outset of the operation, are arranged in the relative position illustrated in Fig. 1. The operator will first lay a lower ordinary shingle binding strip 21 across the box, the ends of said strip resting in the angle formed between the two right angularly extending portions of the arm 15, and preferably projecting somewhat beyond the outer surfaces of said arm. The shingle 22 will then be laid within the box between the ends 3, the inner and thinner ends of the shingles being overlapped, as is usual, and when the desired number of courses have thus been laid, an upper binding strip 23 is applied, being inserted snugly underneath the upper compressing fingers 20 with the side edge of the strip resting against the side edges of the arms 15. At this step in the operation of forming a bundle, the operator will spring the relatively movable section A′ of the box upwardly to a slight extent, as for instance by pressing his knee upwardly against the edge of said section, so as to release the strut 10 which will be permitted to fall down, whereupon the section A′ may be released or swung downwardly. This lowering of the section A′ will manifestly carry the arms 15 downwardly so that the upper fingers 20 will press downwardly upon the top of the bundle, while at the same time such movement of the section A′ will cause the cams 12 to ride upwardly underneath the relatively free ends of the lower compressing fingers 13 and the latter, in connection with the fingers 20, will effectively compress the bundle. When the desired degree of compression has been produced, the projecting ends of the binding strips 21 and 23 may be securely fastened together, as by the ordinary shingle twine passed upwardly through the spaces between the off-set ends 20 of the fingers 19 and the adjoining side edges of the arms 15 so as to produce the ordinary double shingle hitch to complete the bundle; or, if desired, any other means of securing the binding strips together with the shingles in compressed condition, may be employed.

After the strips have been tied or otherwise fastened, it is only necessary for the operator to slightly raise the section A, whereupon the compression will be relieved and the arms 15 may be swung backwardly to the dotted line position illustrated in Fig. 3, and the section A′ dropped again, there-

by leaving the compressed and tied bundle of shingles projecting to a considerable degree at one end over and beyond the cross bar 7 and the remaining inner portion of the relative stationary section A″, so that the operator may easily remove the completed bundle and repeat the operation. Or, if desired, instead of slightly raising the section A′ to release the completed bundle from the compressed fingers, it is evident that the arms 15 may be forced backwardly from the projecting ends of the upper binding strip 23 and thus release the bundle.

Obviously, by rounding out the inner face of the arms 15, as indicated at 16ª, the friction between the inner faces of said arms and the adjoining sill sections will be reduced to a minimum, when the sections 4 are swung downwardly, whereby the arms 15 will have a tendency to drop backwardly toward the posts 2 of the stationary section A″, and thus automatically free themselves from the upper binding strip 23, as soon as permitted to do so by the slight raising of the sections A′.

It is to be understood that our invention is not limited to the use of the lower compressing fingers 13, as the cams 12 themselves would, of course, by a slightly modified proportion of parts, act as lower compressing fingers against the lowermost binding strip 21; but we prefer to use the fingers 13 for the reason that if the cams themselves were employed, they would have a tendency, by frictional engagement with the binding strip 21, to dislodge said strip from its proper position, whereas by the use of the fingers 13, the tendency is just in the opposite direction and the lower binding strip 21 is properly maintained at all times in the crotch or angles of the arms 15. It is also to be understood that our invention is not limited to the use of adjustable upper clamping fingers 19, or to any specific construction, arrangement and proportions of the parts hereinbefore described and illustrated in the accompanying drawings, as various changes may be made without departing from the scope of the invention as defined in the appended claims.

While our invention is herein described particularly as a machine for use in bundling shingles, it is to be understood that the invention is not limited to this use, but is equally applicable for use in bundling lengths of other articles generally.

Having thus described the invention, what is claimed as new is:

1. In a machine of the character described, a box embodying a relatively stationary section and a relatively movable section, compressing devices carried by the box, and means for automatically operating said compressing devices by and upon the movement of the relatively movable section of the box.

2. In a machine of the character described, a box embodying a relatively stationary section and a relatively movable section connected thereto, upper compressing devices carried by the movable section, lower compressing devices carried by the stationary section, and means for automatically moving said compressing devices toward each other by and upon the movement of the movable section.

3. A machine of the character described, comprising a box embodying side sills constructed in sections, corresponding opposite sections being stationary and other corresponding opposite sections being movable, cams carried by the movable sections of the sills, lower compressing fingers carried by the stationary sections of the sills, and arranged to be engaged by said cams upon the movement of the first named sections, and compressing arms secured to and movable with the movable sections of the sills and extending upwardly therefrom and carrying upper compressing fingers substantially as described.

4. A machine of the character described, comprising a box embodying a relatively stationary section and a relatively movable section, lower compressing fingers pivotally connected to the stationary section of the box, upper compressing fingers carried by the movable section of the box, and cams also carried by said movable section and engaging the lower compressing fingers, as specified.

5. A machine of the character described, comprising a box embodying a relatively stationary section, a relatively movable section pivotally connected to the stationary section, legs supporting the box and directly connected to the stationary section thereof, a strut carried by one of said legs and adapted to hold the movable section of the box in its upper position, and upper and lower compressing devices movable toward each other automatically upon the movement of the movable section of the box in a downward direction, such movement of said section to this lowered position permitting the articles in the box to project freely therefrom at one end and allow for the removal of said articles.

6. In a machine of the character described, a box embodying a relatively stationary section and a relatively movable section, said sections including sills having a jointed connection with each other, angularly compressed arms pivotally connected to the movable sections of the sills and frictionally engaging the stationary section of the sills with the sections in horizontal alinement with each other, the inner face of the base portions of said arms being rounded out at the pivotally connected ends thereof, for the purpose specified.

7. A machine of the character described, comprising a box embodying a relatively stationary section and a relatively movable section, the stationary section including sill sections, the movable sections also including sill sections arranged in alinement with the first named sections respectively, side bars connected to the inner faces of the sill sections of the movable box section, a cross bar having rounded ends secured to the relatively stationary sill sections, the side bars being pivotally mounted at one end on the rounded ends of said cross bar, and compressing devices carried by the movable sill sections.

In testimony whereof, we affix our signatures in presence of two witnesses.

ELMER B. CROWLEY. [L. S.]
EDWIN J. GRANT. [L. S.]

Witnesses:
FREDERIC W. SMITH,
WALTER H. GARDNER.