

(No Model.)

2 Sheets—Sheet 1.

W. F. HUTCHINSON & A. J. TYLER.
BUNDLING MACHINE.

No. 518,248.

Patented Apr. 17, 1894.

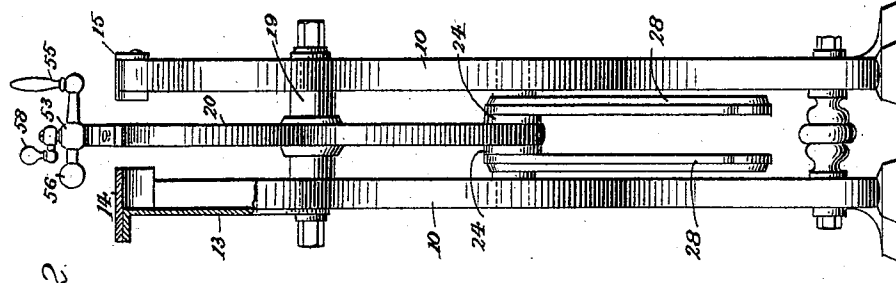


Fig. 2.

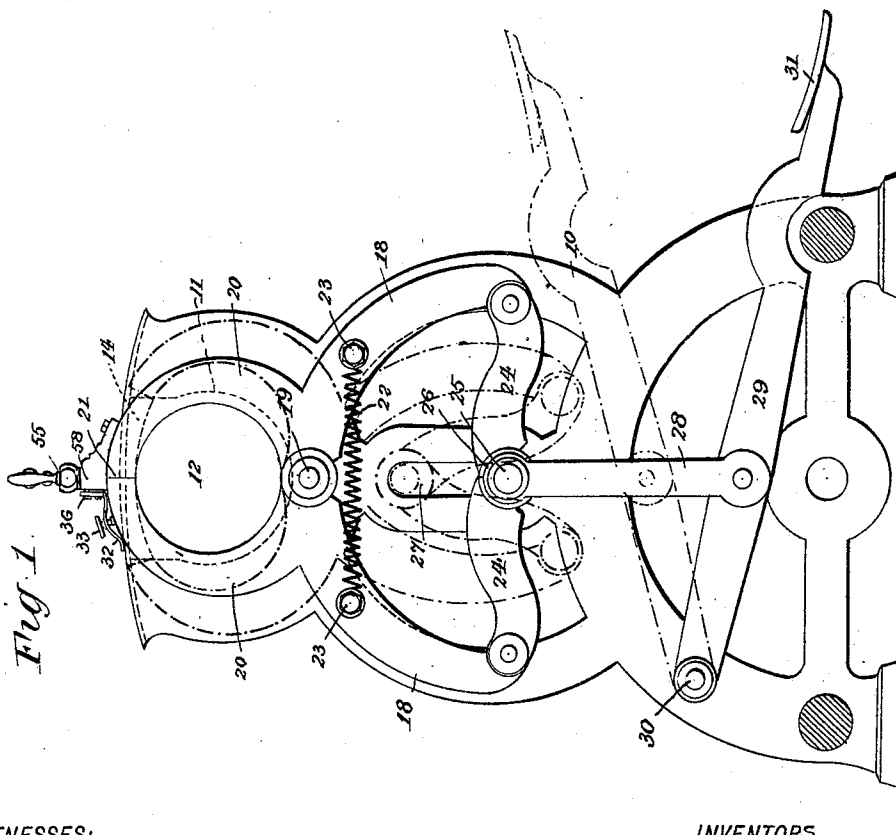


Fig. 1.

WITNESSES:

Warren B. Hutchinson
Chas. Sedgwick

INVENTORS

William F. Hutchinson
Aaron J. Tyler

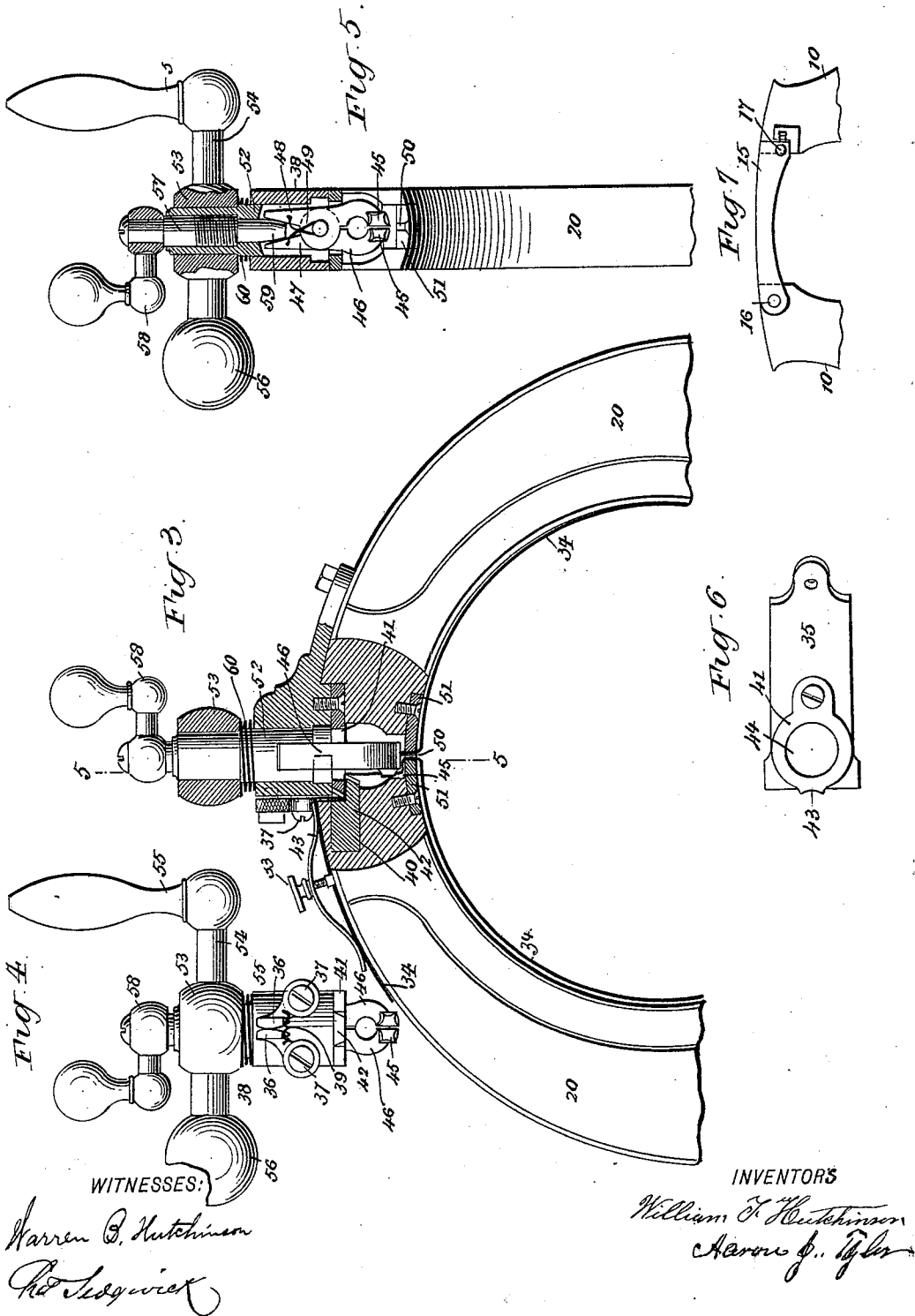
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UNITED STATES PATENT OFFICE.

WILLIAM F. HUTCHINSON AND AARON J. TYLER, OF PASSAIC, NEW JERSEY,
ASSIGNORS TO THE HUTCHINSON MANUFACTURING COMPANY, OF NEW
JERSEY.

BUNDLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 518,248, dated April 17, 1894.

Application filed March 24, 1893. Serial No. 467,418. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. HUTCHINSON and AARON J. TYLER, both of Passaic, in the county of Passaic and State of New Jersey, have invented a new and Improved Bundling-Machine, of which the following is a full, clear, and exact description.

Our invention relates to improvements in that class of machines which are adapted for use in compressing and bundling articles of various kinds; and the object of our invention is to produce a machine which is especially adapted for bundling kindling wood, which is adapted to compress the several pieces of wood into a compact, even bundle, and which is adapted also to tie a wire, or other binder, about the bundle so that the same may be held firmly together after it has been removed from the machine.

To these ends our invention consists of certain features of construction and combinations of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a sectional elevation of the machine embodying our invention. Fig. 2 is a broken front elevation, partly in section. Fig. 3 is a broken enlarged detail view of the compressing jaws and shows in section the mechanism for cutting the binding wire and twisting the ends of the wire together. Fig. 4 is a front elevation of the twisting mechanism. Fig. 5 is a detail vertical section of the same on the line 5—5 in Fig. 3. Fig. 6 is an inverted plan view of one of the cutters and its support; and Fig. 7 is a broken detail view, showing the hinge plate for closing the opening at the upper end and at one side of the frame.

The machine is provided with a suitable frame 10, comprising similar side pieces which are arranged near together and fastened in any convenient way, and the upper end of the frame is curved in the center, as shown at 11, and is open at the top so as to form a nearly circular opening 12 in which the wood to be bundled is held. The open upper end

of the frame is provided on one side with a back plate 13 which forms an abutment against which the ends of the pieces of kindling wood, or other material to be bundled, are placed and this back plate has at the top a curved flange 14 which forms a portion of the opening, next the plate, into a circular shape, and on the opposite side of the frame is a plate 15, similar to the flange 14, but which is hinged to the frame 10 at one end, as shown at 16, (see Fig. 7) and at the opposite end is secured by a spring catch 17. This arrangement enables the plate 15 to be thrown back when the jaws in the top of the frame are to be filled, so as to facilitate placing the wood into position to be bundled, and after this is done, the plate is thrown back, the catch 17 fastens it, and the two plates or flanges 14 and 15 overlap the ends of the wood so that when the jaws apply the pressure to the wood, the latter will not be crowded up in the middle and out of the paths of the jaws.

In the upper portion of the frame are curved levers 18 which are pivoted on a common fulcrum 19, and the upper ends of the levers are formed into curved jaws 20 which swing between the opposite sides of the frame and between the plates 14 and 15, the jaws having their upper ends adapted to abut, as shown at 21, so that the opening 12 between the jaws and in the upper portion of the frame is circular. It will be understood, however, that this opening may be made of any desired shape. The lower ends of the levers are normally held together by springs 22 which are secured to bolts 23 on the levers, so that the jaws normally fly open to receive the wood. The levers 18 are, at their extreme ends, pivoted to toggle levers 24 which extend inward and are pivoted at their inner ends on a shaft 25, which is preferably incased in a sleeve 26 and this slides in the vertical guide slots 27 in the sides of the machine. The shaft 25 is connected by connecting rods 28 with a treadle lever 29 which is fulcrumed on one side of the machine, as shown at 30, and extends to the front of the machine, where it terminates in a suitable foot plate 31. It will be seen then that when the jaws are open, as shown by dotted lines in Fig. 1, the treadle

will be raised and the inner ends of the toggle levers 24 will be raised while the lower ends of the levers 18 will be moved inward. The wood may thus be easily placed between the jaws, and when pressure is applied to the treadle lever 29, the inner ends of the toggle levers 24 are pulled down, thus forcing outward the lower ends of the levers 18 and the jaws 20 are thrown together with great force, so that the wood held between the jaws is pressed into a compact bundle.

To hold the wood in its compressed condition, a wire 34 is employed, which is fed to the jaws beneath a curved tension spring 32 which is fixed to one of the jaws, near the top, by means of a set screw 33. The wire 34 is adapted to be placed in position in the jaws when they are opened, and its free end is held between the jaws of a pair of nippers 36 which are secured to the twister 35 on the free end of the jaw 20 opposite the one carrying the tension spring. The members of the nippers 36 are fulcrumed on studs 37 on a support 38 of the twister 35, and they are normally pressed together by a suitable spring 39. The free end of the wire is pushed up between the jaws and the nippers which are roughened on their inner faces, as shown in Fig. 3, and as the tension on the wire is downward, the strain of the wire has a tendency to force the jaws together so that the wire cannot be accidentally released. The wire is made to follow the inner faces of the jaws 20 by pressing it to place therein, or simply dropping it in a loop in the jaws, and its free end is held in the nippers 36, as described, and its body portion passes beneath the tension spring. The two members of the wire thus pass between the knives or cutters 40 and 41, which are secured to the opposite jaws at their upper and adjacent ends, and the cutting edges 42 and 43 of the knives are adapted to slide close together when the jaws are closed, as shown in Fig. 3, so that the wire which extends between the knives is thus cut off. The knife 40 is fastened rigidly to one of the jaws and the knife 41 is fastened to the under side of the support 38, which is secured rigidly to the opposite jaw. After passing between the knives, the members of the wire extend between the jaws 45 of the nippers 46, but the wires are only in this position when the jaws 20 are closed. The jaws 45 of the nippers 46 extend a little to one side of the nipper members, as shown clearly in Fig. 3, so as to be sure to catch the wire. The nippers 46 are like the ordinary nippers, comprising two similar members which are pivoted together near the center, and the nippers extend downward through a hole 44 in the knife 43, so that they will hold the wires together at a point beneath the knives and this arrangement enables the nippers to catch the two ends of the wire, after the wire has been severed by the knives, so that the ends may be twisted together, as hereinafter described. The nippers 46 are pivoted, as shown at 47, and the jaws 45 are normally

thrown open by a spring 49 which forces the upper ends 48 of the nippers toward each other. The wire, after passing the nippers, extends downward through slots 50 in throat plates 51 which are secured to the lower edges of the upper ends of the jaws 20, and the inner edges of the throat plates are made to abut. The nippers 46 are carried in a revoluble post 52 which is held to turn in the support 38 and which extends upward above the support, at which point it has a ring 53 secured to it, and the ring is provided with an outwardly extending arm 54 which, at one end, is provided with a handle 55 and at the other with a knob 56, so that it may be grasped at either end and turned. It will be seen that by turning the post 52, the nippers will be also turned and the wire held by them will be twisted. A threaded stem 57 extends through the upper portion of the post 52, and is threaded in the post so that it may be turned up or down, as desired. This stem has a suitable handle 58 at the top and its lower end 59 is rounded slightly and enters between the upper ends 48 of the nippers 46, and by turning the stem downward it spreads the upper ends of the nippers and throws the jaws 45 together. The post 52 is normally pressed upward by a spring 60 which encircles it, and when the post is turned to twist the wire, the twisting and consequent shortening of the wire causes the post to be drawn down against the tension of the spring, and the operator knows, when the spring is closed, that the wire is sufficiently twisted and refrains from turning the post any farther, thus saving the wire from being broken.

When the machine is to be operated the jaws are permitted to fly open, as specified, the plate 15 is swung back, the wire is pulled from beneath the tension spring 32 and dropped into the jaws in a loop, as shown by dotted lines in Fig. 3, its free end being held in the nippers 36, the wood is fed into the machine upon the wire and against the back plate 13, and when the opening 12 is full, the plate 15 is closed, the treadle 29 is thrown down thus forcing the jaws together, and when the jaws come together, the wire is caught between the knives 40 and 41 and severed, and this leaves the free ends of the wire sticking up through the slots 50 and between the jaws of the nippers 46. The operator then gives the handle 58 a turn which screws down the stem 57 and closes the nippers 46 upon the free ends of the wires. The post 52 and nippers 46 are then given two or three turns, by means of the handle connected with the post, and thus the wires are twisted together. The handle 58 is then turned back and the jaws 20 permitted to fly open, when the complete bundle may be removed.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination with the oppositely moving jaws adapted to form a bundle be-

tween them, of a wire-holding device near the free end of one jaw, a wire-holding device near the free end of the opposite jaw, nippers carried by one of the jaws and adapted to engage the ends of a binding wire, and mechanism for twisting the wire ends together, substantially as described.

2. In a bundling machine, the combination of the oppositely arranged jaws movable toward and away from each other, wire holders on the free ends of the jaws, a twisting device to unite the ends of the wire, and knives actuated by the jaws and arranged to cut the wire, substantially as described.

3. A bundling machine, comprising oppositely arranged jaws having curved adjacent faces to form a bundle, a lever mechanism for forcing the jaws together, and an abutment plate arranged opposite the opening in the jaws and provided with a top flange to overlap a bundle formed between the jaws, substantially as described.

4. A bundling machine, comprising a supporting frame having an opening in its top, a back plate arranged opposite one side of the opening and provided with a top flange projecting above the opening, a hinged plate secured to the frame and adapted to close the opposite side of the opening at the top, and a pair of oppositely arranged swinging jaws provided with curved inner faces and held to move through the opening adjacent to the back plate, substantially as described.

5. The combination, with the oppositely swinging jaws adapted to form a bundle between them, of a wire-holding device near the free end of one jaw, a wire-holding device near the free end of the opposite jaw, knives carried by the jaws and adapted to sever the wire, nippers carried by one of the jaws and adapted to engage the severed ends of the wire, and mechanism for twisting the wire ends together, substantially as described.

6. The combination with the oppositely arranged jaws, of a tension device or wire-holder

near the free end of one jaw, a wire-holding device near the free end of the opposite jaw, knives carried by the jaws and adapted to sever a wire by the closing of the jaws, revoluble nippers carried by one of the jaws and extending below the knives to engage the wire ends, mechanism for closing the nippers upon the wire ends, and a device for twisting the nippers and wires, substantially as described.

7. The combination, with the oppositely arranged compressing jaws, of a tension device near the free end of one jaw adapted to hold a wire, nippers arranged near the free end of the opposite jaw to engage the end of a wire, knives carried by the jaws and adapted to cut the wire when the jaws are closed, a revoluble post held at the free end of one of the jaws, a second set of nippers carried by the post and extending beneath the knives to engage the wire, and a vertically movable stem held in the post and adapted to close the second set of nippers upon the wire, substantially as described.

8. The combination, with the oppositely arranged compressing jaws, of slotted throat plates on the lower portion of the meeting faces of the jaws to guide a wire, a wire-holding device near the free end of one jaw, a wire-holding device near the free end of the opposite jaw, knives carried by the jaws and adapted to sever the wire by the closing of the jaws, a revoluble post held to turn above the knives, a pair of nippers pivoted in the post and extending downward between the knives and the throat plates, and a revoluble and vertically movable stem threaded in the post and adapted to close the nippers upon the wire ends, substantially as described.

WILLIAM F. HUTCHINSON.
AARON J. TYLER.

Witnesses:

WARREN B. HUTCHINSON,
C. SEDGWICK.