(No Model.)

W. A. LAIDLAW.

MACHINE FOR MAKING WIRE BALE TIES.

No. 351,517. Patented Oct. 26, 1886.

Fig. 1.

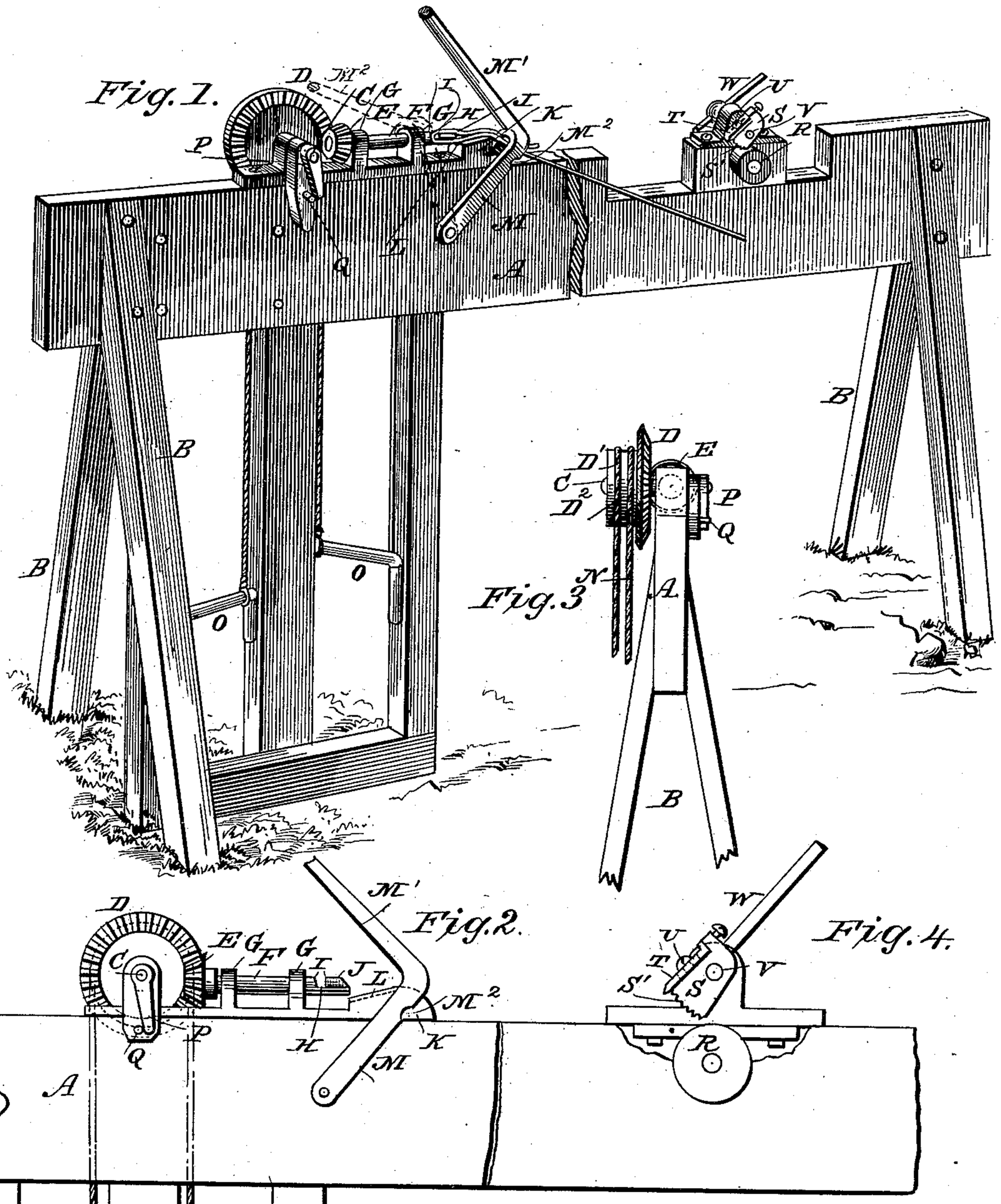

Fig. 3.

Fig. 2.

Fig. 4.

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WILLIAM A. LAIDLAW, OF CHEROKEE, KANSAS.

MACHINE FOR MAKING WIRE BALE-TIES.

SPECIFICATION forming part of Letters Patent No. 351,517, dated October 26, 1886.

Application filed August 18, 1886. Serial No. 211,222. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. LAIDLAW, of Cherokee, in the county of Crawford and State of Kansas, have invented a new and useful Improvement in Wire-Bale Tie Machines, of which the following is a specification.

My invention consists in an improved machine for making wire bale-ties, which will be hereinafter fully described and claimed, and by the use of which wire bale-ties can be made with less labor and with greater rapidity than is now possible.

Referring to the accompanying drawings, Figure 1 is a perspective view of my improved machine. Fig. 2 is an enlarged detail view of mechanism for forming the loop on one end of the wire tie. Fig. 3 is a side elevation of the same, and Fig. 4 is an enlarged detail view of the wire-cutting mechanism.

The same letters of reference indicate corresponding parts in all the figures.

Referring to the several parts by letter, A represents the body, and B B the supports, of the frame on which the several parts of the mechanism are mounted in their operative positions. This longitudinal body A may be made of a timber of two by eight hard pine, or other suitable material of the requisite length. Near one end of this body A is mounted, on a short transverse shaft, C, a bevel-wheel, D, which meshes with a bevel-pinion, E, on one end of a shaft, F, which is arranged longitudinally on the top of the body A, turning in bearings G, the other and free end of this shaft F having formed on its upper side—that is, the side which is normally upward—a transverse notch or recess, H, and the shoulders I I, running from the recess or groove to the extremity of that end of the shaft forming the reduced longitudinal projection J, extending from the notch to the end of the shaft, as shown in the drawings. Immediately to the rear of the free end of the shaft F, and forming a part of the casting with which the bearings G are integral, is a block, K, having the longitudinal groove L in its top.

M indicates a bifurcated lever, which straddles the body A, and has its lower ends pivoted by a bolt passing through the said body, the lever having the operating-handle M′ and its bifurcated portion being of sufficient length to just pass closely over the grooved block K when it is moved back into the position shown in full lines in Fig. 1 of the drawings.

The rear side of the bevel-wheel D is formed with an annular flange or hub, D′, having an annular groove, D^2, around which are fastened and wound the cords N N, the lower ends of which are secured to the two sliding treadles O O, so that by forcing down either treadle with the foot the bevel-wheel will be revolved in that direction for one revolution, a short arm, P, on one end of the short shaft on which the said wheel is mounted striking against a stop, Q, on the side of the body-piece A when the wheel has completed one revolution, thus limiting the movement of the said wheel.

In operation the handle of the lever is thrown forward into the position shown in dotted lines in Fig. 1, and the end of the wire is placed through the notch H a distance of three or four inches, when the bifurcated lever is thrown back into its first position, as shown in full lines in Fig. 1, thus bending the wire around the projection J, and holding the main portion of the wire and its end firmly in the longitudinal groove L of the block K. The foot is then placed on whichever of the treadles is at the time elevated, and the said treadle forced down, thus through the cords N revolving the bevel-wheel D for one revolution, and the pinion E, with which it meshes, for three revolutions, thereby twisting the end of the wire and the main wire together, so as to form a loop sufficiently strong to stand any strain. The lever is then swung forward into the position shown in dotted lines in Fig. 1. The main portion of the wire is now inserted between a small roller, R, and a cam, S, the curved face of which is serrated or roughened, the roller and the cam being mounted on the body A, as shown, at a sufficient distance from the loop-forming mechanism, and the cam having adjustably secured on its forward side the wire-cutting knife T, which may be adjusted to take up wear in its cutting-edge by means of its adjusting-screw U, and the cam C is mounted on one end of a short transverse shaft, V, the other end of which has a lever, W, as shown. The lever W rests normally in its backward position, which permits of the

main portion of the wire being inserted between the cam and the roller, and when the wire is so inserted the lever W is thrown forward, thereby bringing the serrated curved face of the cam in contact with the wire, which is thus pressed between the said face of the cam and the periphery of the roller R, so that as the lever W is swung forward the wire is drawn back between the cam and the roller so as to stretch it tightly at the moment when the edge of the knife T comes in contact with it, the knife cutting the wire as it strikes it. As soon as the wire is cut and the strain on is thus relaxed the eye previously formed in its other end is thrown off of the projection J, and the machine is ready to receive another wire, the shaft F being always in the correct position to receive the end of the wire when either of the treadles is down in its lowermost position. The rear edges of the bifurcated lever are formed with the shallow curved notches or depressions M^2 at the point where the lever first strikes the wire and its end on its backward stroke, these shallow curved notches preventing the wire from being forced up from off the projection J as the lever begins to bend it.

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

1. The combination of the shaft having the bevel-pinion at one end and formed at its other end with the transverse notch and the longitudinal shoulders and projection, the block having the longitudinal top groove, the bevel-wheel, and means, substantially as described, for rotating the same in either direction, and the bifurcated lever, arranged as described, substantially as set forth.

2. The combination of the shaft having the bevel-pinion at one end and formed at its other end with the transverse notch and the longitudinal shoulders and projection, the block having the longitudinal top groove, the bevel-wheel having the hub formed with the annular groove, the operating-cords, and the treadles, and the bifurcated lever, arranged as described, and having the curved notches in its rear edges, as set forth.

3. The combination of the roller, the cam mounted on the transverse shaft and having the roughened curved face, the adjustable knife, and the lever for rotating the said transverse shaft.

4. The combination, with the shaft having the bevel-pinion at one end, and formed at its other end with the transverse notch and the longitudinal shoulders and projection, the block having the longitudinal top groove, the bevel-wheel having the hub formed with the annular groove, the operating cords, and the treadles, and having at the end of its shaft the short arm engaging with the stop, and the bifurcated lever, arranged as described, and having the curved notches in its rear edges, of the roller, the cam mounted on the transverse shaft, and having the roughened curved face, the adjustable knife, and the lever for rotating the said transverse shaft, all constructed and arranged to operate in the manner and for the purpose herein set forth.

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Witnesses:
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