N. FORD.

MACHINE FOR TWISTING HAY, STRAW, &c., FOR FUEL.

No. 184,853. Patented Nov. 28, 1876.

*Fig. 1.*

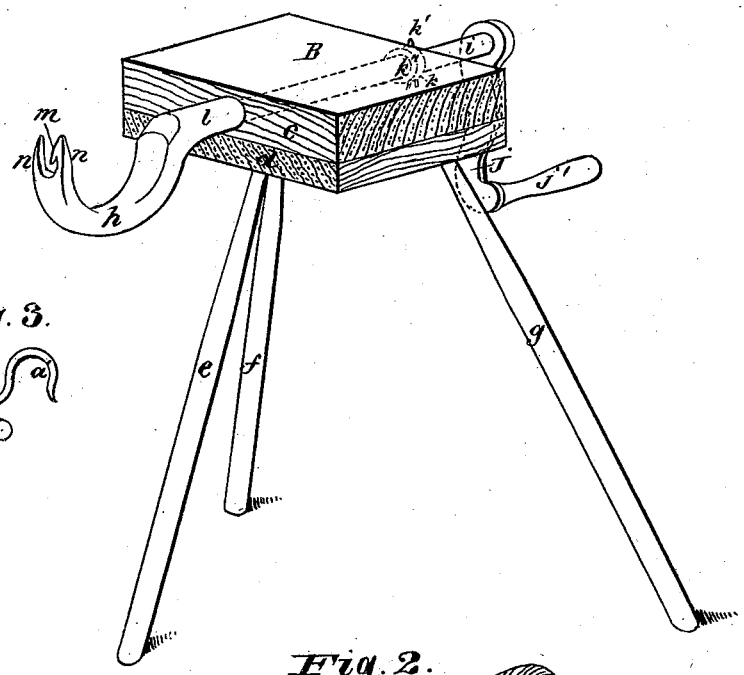



*Fig. 3.*


*Fig. 2.*

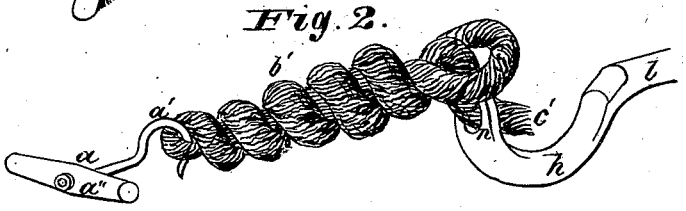
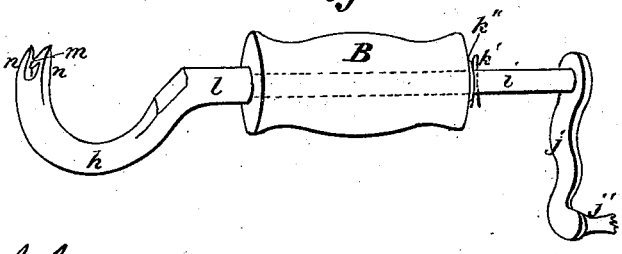



*Fig. 4.*




WITNESSES

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# UNITED STATES PATENT OFFICE.

NATHAN FORD, OF YANKTON, DAKOTA TERRITORY.

## IMPROVEMENT IN MACHINES FOR TWISTING HAY, &c., FOR FUEL.

Specification forming part of Letters Patent No. **184,853**, dated November 28, 1876; application filed October 11, 1876.

*To all whom it may concern:*

Be it known that I, NATHAN FORD, of the city of Yankton, in the county of Yankton and Territory of Dakota, have invented a new and useful Machine for Twisting Hay, Straw, &c., for Fuel; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view. Fig. 2 shows the manner in which the loose end of the coil is tucked through the loop of the same. Fig. 3 is a perspective view of the detached hook; and Fig. 4 is a perspective view, showing a modification in the construction of the block, so as to adapt the machine to be held in the hand.

The detached hook *a* is composed of a wrought-iron (or other metal) hooked bar, *a'*, swiveled in the wooden handle *a''*.

The block B in Fig. 1 is eight inches by ten inches in size, of hard wood, and composed of two pieces—*c*, which is two inches thick, and *d*, one inch thick—securely fastened together, so that the fibers of the piece *d* will run at right angles with those of the piece *c*, thus giving great strength to the block B, and preventing it from warping or splitting. In the base of said block B are inserted the three hard-wood legs *e*, *f*, and *g*, each about four feet long and one and a half inch in diameter, set at an angle of about sixty degrees. The leg *e* is set beneath the hook *h*. The shaft *i* and hook *h* are in one piece, and composed of malleable cast-iron or other metal, to which is attached the crank *j*, of cast-iron, with wooden handle *j'* on same, the crank *j* being so attached to the shaft as to make the hook *h* turn up when at rest. The shaft *i* is about one foot long and one inch in diameter, and has a hole in the same at *k*, to receive a spring-key, *k'*, with iron washer *k''* between it and block B, to keep shaft and hook in working-place. The piece *c* of block B has an inch hole bored through it transversely to receive the shaft *i*. The shoulder *l* on shaft *i* serves to keep the shaft in working-place. The hook *h* is larger than the shaft *i*, is nearly round, and slightly flattened and tapering toward the point. It is bifurcated or divided at the point into two parts, *n n*, to one of which is attached the reverse hook or barb *m*, to receive and hold the loose end of the completed coil until the loop on the hook *h* is slipped off the hook, thereby tucking the loose end *c'* of the coil through the loop, as shown in Fig. 2.

The coil or twist of hay, straw, &c., is made by turning the crank *j*, after applying the material to be twisted at the hook *h*, and attaching it thereto. When a sufficient length of twist is obtained, the person making the twist catches the same, at about one-third of the distance from the hook *h*, with the detached swivel-hook *a*, and by the continued turning of the crank the twist is coiled back upon itself, as shown in Fig. 2, *b'* indicating the coil. The loose end *c'* of the coil is thereupon put into the open end of the hook *h*, and caught by the barb *m*, as shown in Fig. 2, and the loop end of the coil is slipped off the hook *h*, thereby tucking the loose end into the loop, and easily and quickly fastening and completing the coil.

This machine makes the twists of hay, straw, &c., much more quickly and easily than any other, besides being simpler, cheaper, and more easily operated.

Instead of the material having to be handled twice, by being placed on a table, as in other machines, it can be taken directly out of a stack or loose pile, thereby saving much time and trouble. The detached hook *a* enables the operator to make the coils of any length desired, and of variable lengths, to suit the varying character of the different twists, hay being not always uniform in quality, and frequently breaking in the twist, so as to prevent making the coil of the standard length.

The barbed and forked hook saves much time, first, by enabling the hay to be quickly attached (being merely put around it) instead of the many movements necessary to accomplish the same result in other machines; and, lastly, by tucking the loose end in the loop of the coil quickly and easily, instead of the slow, tiresome process of pushing it through with both hands after removing the coil from the machine.

This machine is much more portable than

others, less likely to get out of order, and costs much less to the poor farmer.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The hook provided with the slitted end and the barb *m*, as shown and described.

2. The detached swivel-hook *a*, in combination with a hook, *h*, and shaft *i*, as shown and described.

3. The combination of the block B and shaft *i*, provided with hook *h*, having divided and barbed point, as shown, and for the purpose specified.

NATHAN FORD.

Witnesses:
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