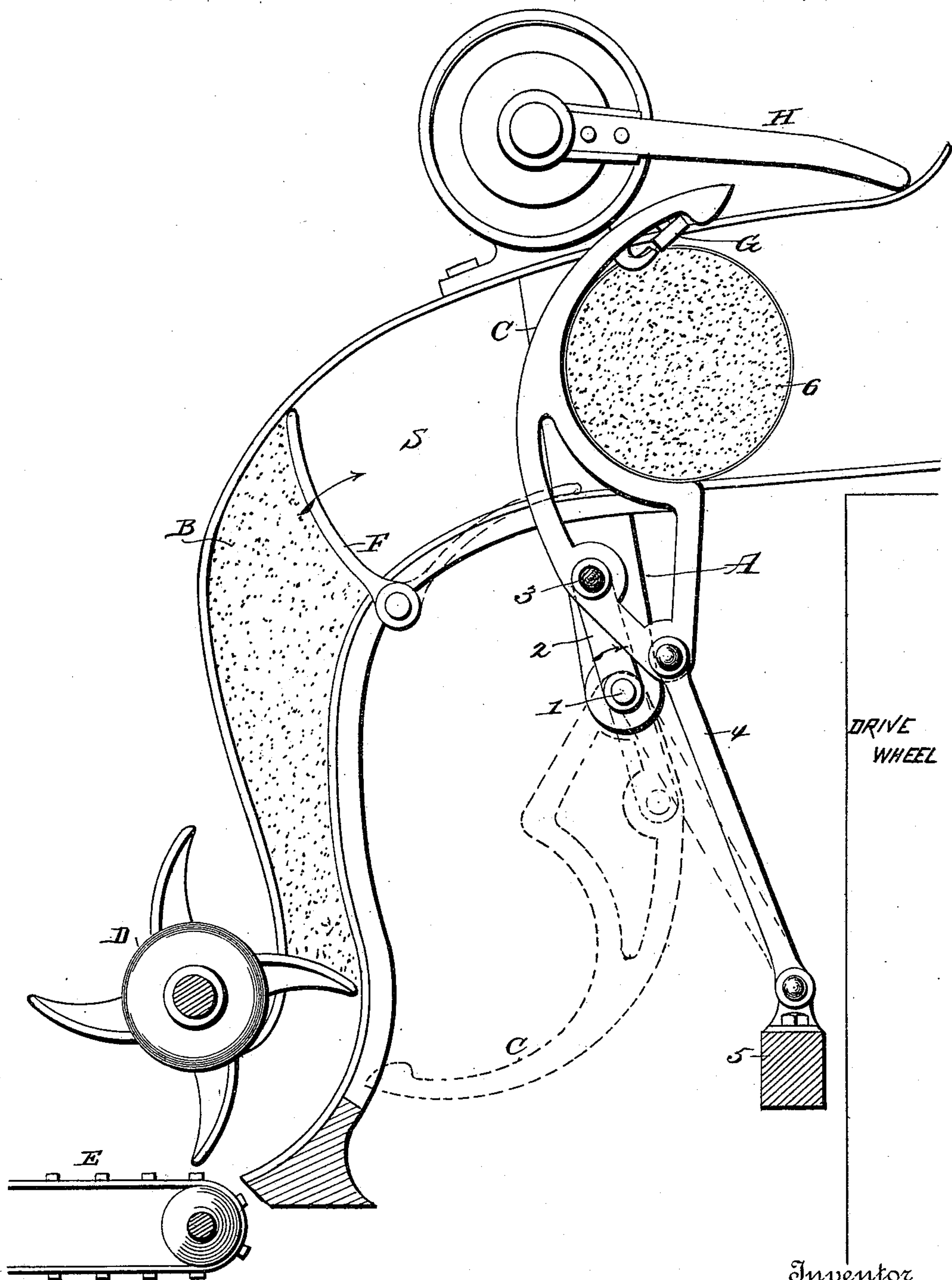


(No Model.)

H. M. WEAVER.  
NEEDLE FOR GRAIN BINDERS.

No. 470,852.

Patented Mar. 15, 1892.



Witnesses  
*G. M. Thompson*  
*G. F. Downing*

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# UNITED STATES PATENT OFFICE.

HENRY M. WEAVER, OF MANSFIELD, OHIO.

## NEEDLE FOR GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 470,852, dated March 15, 1892.

Application filed September 19, 1890. Serial No. 365,533. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY M. WEAVER, a citizen of Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Needle-Movements for Grain-Binders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in grain-binders, and more particularly to an improved needle-movement; and it consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

The accompanying drawing is an elevation, partly in section, of a portion of a grain-binder illustrating my improved needle-movement.

A represents the U-frame of a binder, and B a grain-receptacle having a slot therein for the reception of a needle C, as hereinafter explained. At the mouth of the receptacle a packer D is located and adapted to pack the grain into the receptacle B as it arrives there to on the conveyer E. A trip-bar F is connected to the wall of the receptacle B and adapted to close said receptacle while a bundle of grain is being tied, and thus prevent the further upward movement of the loose grain.

A knotter G of any approved construction is connected with the frame in proximity to the path of the needle C, and in proximity to the knotter a vibrating arm H is located for discharging the bundles of grain after the tying operation is complete.

The parts above described may be of any approved construction, and any suitable and well-known means may be employed for driving them, my present invention relating more particularly to the needle-movement and the devices for accomplishing such movement, which will now be described in detail.

Mounted on the U-frame A is a shaft 1, having a crank-arm 2 projecting therefrom. Pivottally connected to this crank-arm at a point 3 is the needle C, and pivottally con-

nected to the rear end of said needle is a link 4, the other end of which is pivottally connected to a stationary part 5 of the frame.

The drawing illustrates the needle after carrying up the gavel which had accumulated in the receptacle B. The crank-arm 2 revolves in the direction of the arrow, and it is obvious that its further movement will cause the head of the needle C to move backward and finally take the position shown by the dotted lines. The head of the needle, it will be seen, descends outside the wall of the grain-receptacle B, which meanwhile has been filling with grain. To recapitulate, the movement of the needle is as follows: It starts from the position shown in dotted lines and rises, sweeping the grain out of receptacle B, carrying it to the position shown at 6. Then as soon as the knot is tied, and while the sheaf is being discharged by arms H, the needle descends to the position shown in dotted lines ready to repeat the operation. The trip-bar F forms an abutment, keeping the grain in the receptacle back until sufficient has accumulated to form a sheaf. It will be noticed that the portion S of the receptacle B is empty, and it remains so until a sheaf is discharged, thus insuring the separation of the sheaf from the unbound grain.

It will be seen from the foregoing description that the needle C performs two functions, one being the lifting of the grain accumulated in the grain-receptacle B and the other being the passing of the cord about the gavel at the same time and with the same needle. Heretofore when the grain had arrived at the inner end of the carrier E the question had been how to get it over the wheel and deliver it to the knotting and binding apparatus. I practically carry the grain from the lower canvas E to a position over the top of the drive-wheel by means of needle C, which gathers in the gavel, and sweeps it upward to the position shown in the drawing, thus entirely dispensing with other raising devices. With this same needle I pass the cord around the gavel.

In short, my invention lies in placing the needle between the lower canvas and the wheel D and using it as a raising device as well as a cord-conveying one, and in so doing it performs important service. By this arrange-



ment of parts I narrow down the machine four feet and do away with expensive and cumbersome parts.

It is evident that slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope. Hence I do not wish to limit myself to the precise details of construction herein set forth; but,

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

1. In a grain-binder, the combination, with a grain-receptacle curved substantially as shown and located between the inner end of the lower canvas and the main drive-wheel, of a cord-carrying and grain-raising needle, a link pivoted at one end and to the opposite end of which the needle is pivotally connected, and a crank-shaft the crank of which is pivotally connected with the needle, whereby by the rotation of the shaft the needle is made to pass without the receptacle while moving in one direction and through the receptacle

when moving in the opposite direction, substantially as set forth.

2. The combination, with a receptacle curved substantially as shown and located between the inner end of the lower canvas and the main drive-wheel, packers and cut-off arranged to operate in the receptacle, of a cord-carrying and grain-raising needle, a link pivotally supported at one end and connected at its opposite end with the needle, a crank-shaft the crank of which is pivotally connected with the needle, whereby by the rotation of the shaft the needle is made to pass outside of the receptacle while descending and inside of the receptacle when ascending, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HENRY M. WEAVER.

Witnesses:

L. S. SMITH,  
JERRY S. BOLLMAN.