

(No Model.)

J. C. McLACHLAN.

GRAIN BINDER.

No. 326,233.

Patented Sept. 15, 1885.

Fig. 2.

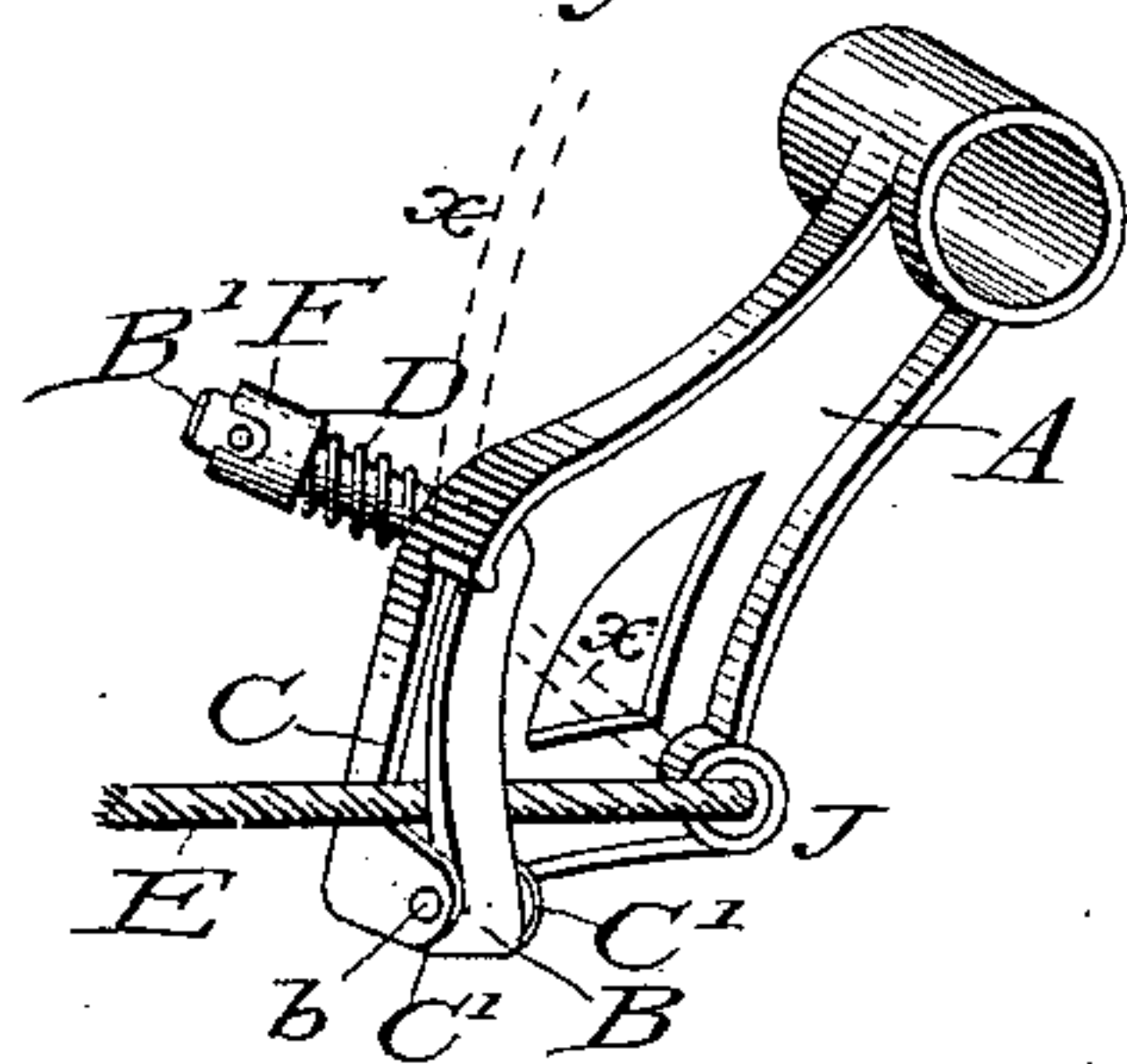


Fig. 3.

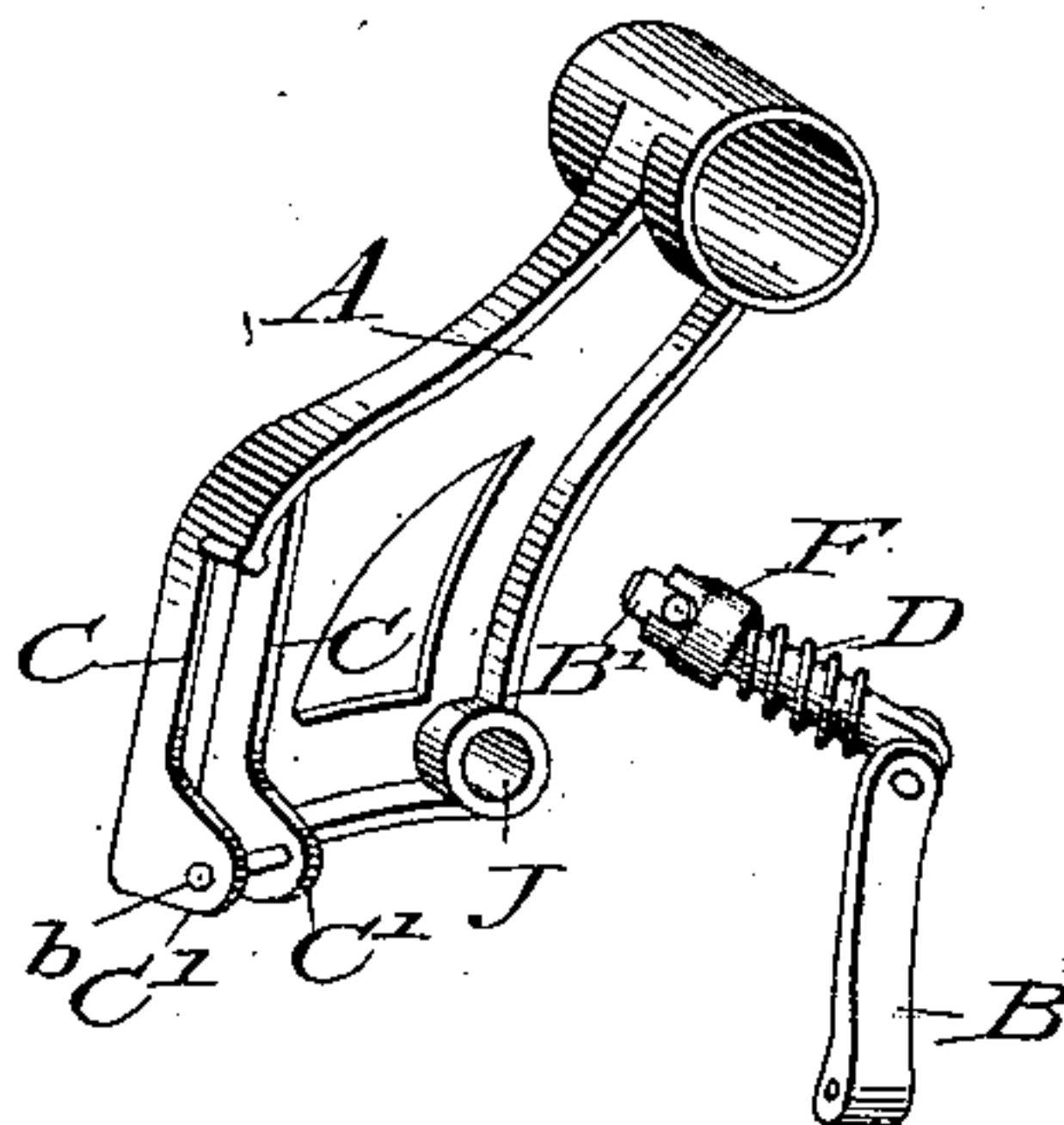
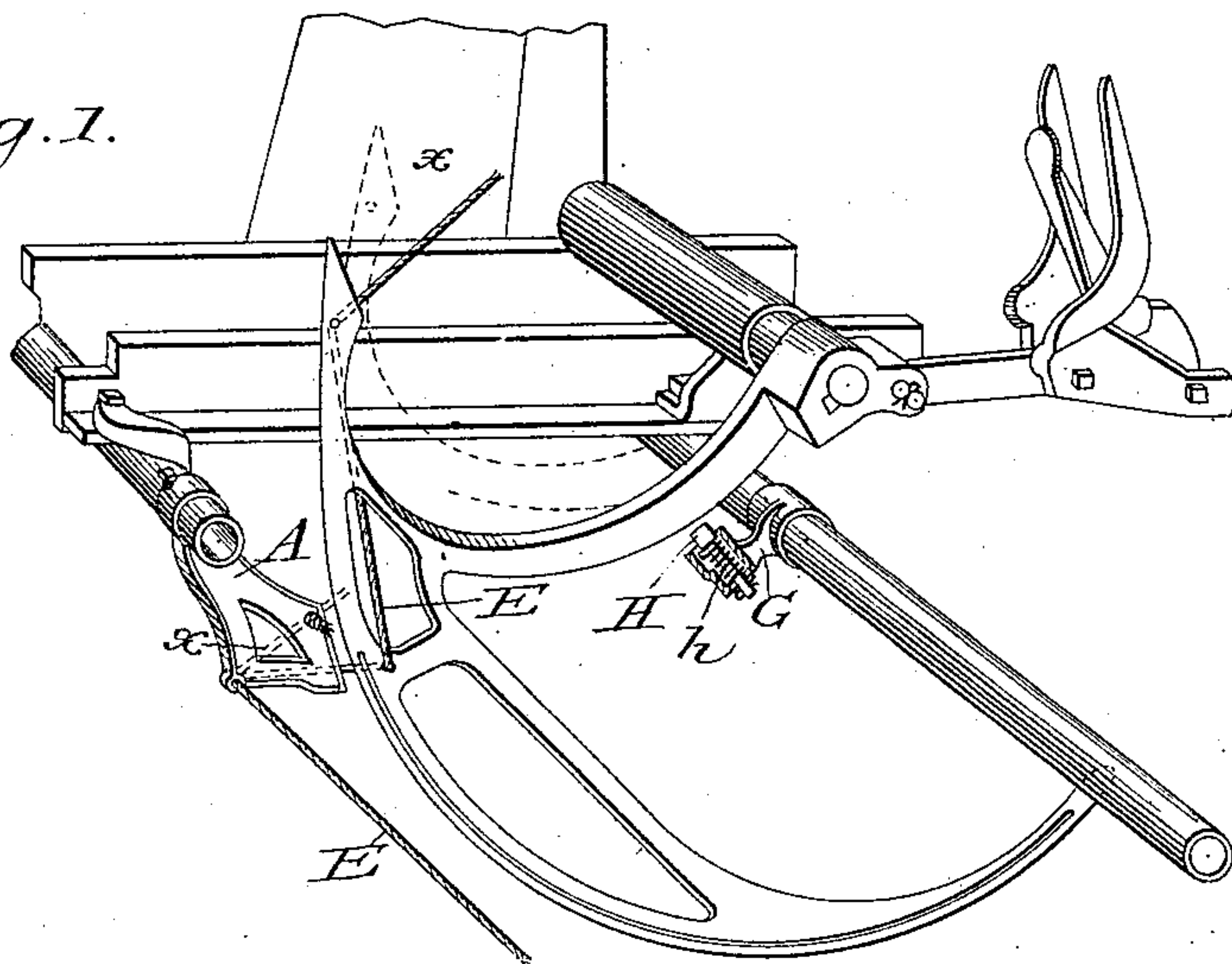


Fig. 1.



Witnesses:

A. M. Moxey.  
C. F. Thurmont

Inventor:  
J. C. McLachlan  
By J. W. Ford Atty.



# UNITED STATES PATENT OFFICE.

JOHN C. McLACHLAN, OF LONDON, ONTARIO, CANADA, ASSIGNOR TO THE  
JOHNSTON HARVESTER COMPANY OF BATAVIA, NEW YORK.

## GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 326,233, dated September 15, 1885.

Application filed June 1, 1885. (No model.) Patented in Canada March 16, 1885, No. 21,279.

*To all whom it may concern:*

Be it known that I, JOHN C. McLACHLAN, a citizen of Canada, residing at London, in the county of Middlesex and Province of Ontario, have invented a new and useful Improvement in Grain-Binders, of which the following is a specification.

My invention relates to improvements in grain-binding machines in which twine is used to make the band for tying the bundle; and the objects of my improvements are to give the necessary tension to the band by the reciprocating movement of the twine-carrying needle, which is so arranged that the cord is frictionally tightened by the upward throw of the needle and rendered slack by the downward motion of the same. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the needle and so much of the other parts of the binding mechanism as is necessary to show the relative position of the needle and the operation of the tension device. Fig. 2 is an enlarged detail view of the tension device, and Fig. 3 is a similar view of the tension device with certain other parts in detail.

Similar letters refer to similar parts throughout the several views.

A is a bracket secured in any suitable manner to the binder-frame.

B is a right-angled lever pivoted to bracket A at *b*, and having one arm, B', passing loosely through an arm of the bracket A.

D is a spiral spring coiled about the cylindrical part B'.

F is a nut or equivalent device, placed upon the part B', and against which one end of the spiral spring abuts, while the other end of the said spring rests against the bracket in such manner that the part B at the angle is yieldingly held against the bracket by the spiral spring D.

C are flanges upon the bracket A, and provided with ears C', between which the lower end of the lever B is placed, and a pivotal connection made by means of the pin *b*, which passes through the lever as well as the ears in such manner that the cord is loosely held from lateral displacement for a purpose which will presently appear.

G is a bracket secured to the frame in a line with the arm of the needle.

H is a plunger-bolt encircled by the spring *h*, arranged so as to form a yielding stop, against which the needle impinges in the extreme throw of the same, so as insure the positive action of the locking mechanism (not shown) by giving the needle a slight rebound in the backward swing, also allowing the needle-supporting arm to rest against the bolt until the needle is again brought into action with the several binding parts that work in unison. It will be observed that while the needle is in a state of rest, and as the harvesting-machine is passing over the uneven ground in the act of cutting the grain for forming the sheaf, the spring-bolt forms a cushion, upon which the needle rests, and thus prevents any displacement incident to the jar of the said needle when resting upon an unyielding surface.

J is an aperture in the bracket A, through which the binding-cord E passes, acting as a guide for the same, leading the cord into the large opening found at the foot of the tension-bar in the downward motion of the needle (while the sheaf is being formed) and conducting the said cord to the topmost part of the tension-bar (causing a grip upon the cord) in the upward movement of the needle, and thus giving the proper tension necessary for securing the bundle by means of the reciprocating movement of the needle.

In practice, when the needle and cord are in the position shown in full lines in Fig. 1, the stalks of grain are by suitable machinery being compressibly placed in position, with the cord running loosely through the tension device and underneath the stalks of grain. When a sufficient amount of grain to form a sheaf is gathered into position, the needle is thrown into reciprocal action in the well-known manner, the cord is carried around the bundle, and at the same time is moved upward between the spring-jaws of the tension device, as shown by dotted lines *x*, in Fig. 1, and is there held until the operation of binding and discharging the bundle is performed, (which is in the usual and well-known manner,) and when done the needle recedes and the operation is repeated.

If desired, the tension-bar may be jointed

at its angle (see Fig. 3) so as to move straight through the bracket A, instead of describing an arc of a circle, as must be done when a rigid bent bar is used.

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

1. In a self-binding harvester, the combination of the fixed tension-bracket in the rear  
10 of the needle, the spring tension-bar flexibly secured to the bracket, the binding-twine, and the twine-carrying needle, all arranged and operating substantially as described.

2. In a self-binding harvester, the combination of the bent tension-bar, the tension-  
15 bracket, the flanges, and the tension-bar-holding ears, all arranged and operating substantially as described.

3. The combination of the twine needle-arm, the spring-stop, and bracket G, arranged and  
20 operating substantially as described.

JOHN C. McLACHLAN.

Witnesses:

R. G. FISHER,  
GEO. C. GUNN.