

J. F. STEWARD.
HARVESTING MACHINE.

No. 554,318.

Patented Feb. 11, 1896.

Fig. 1.

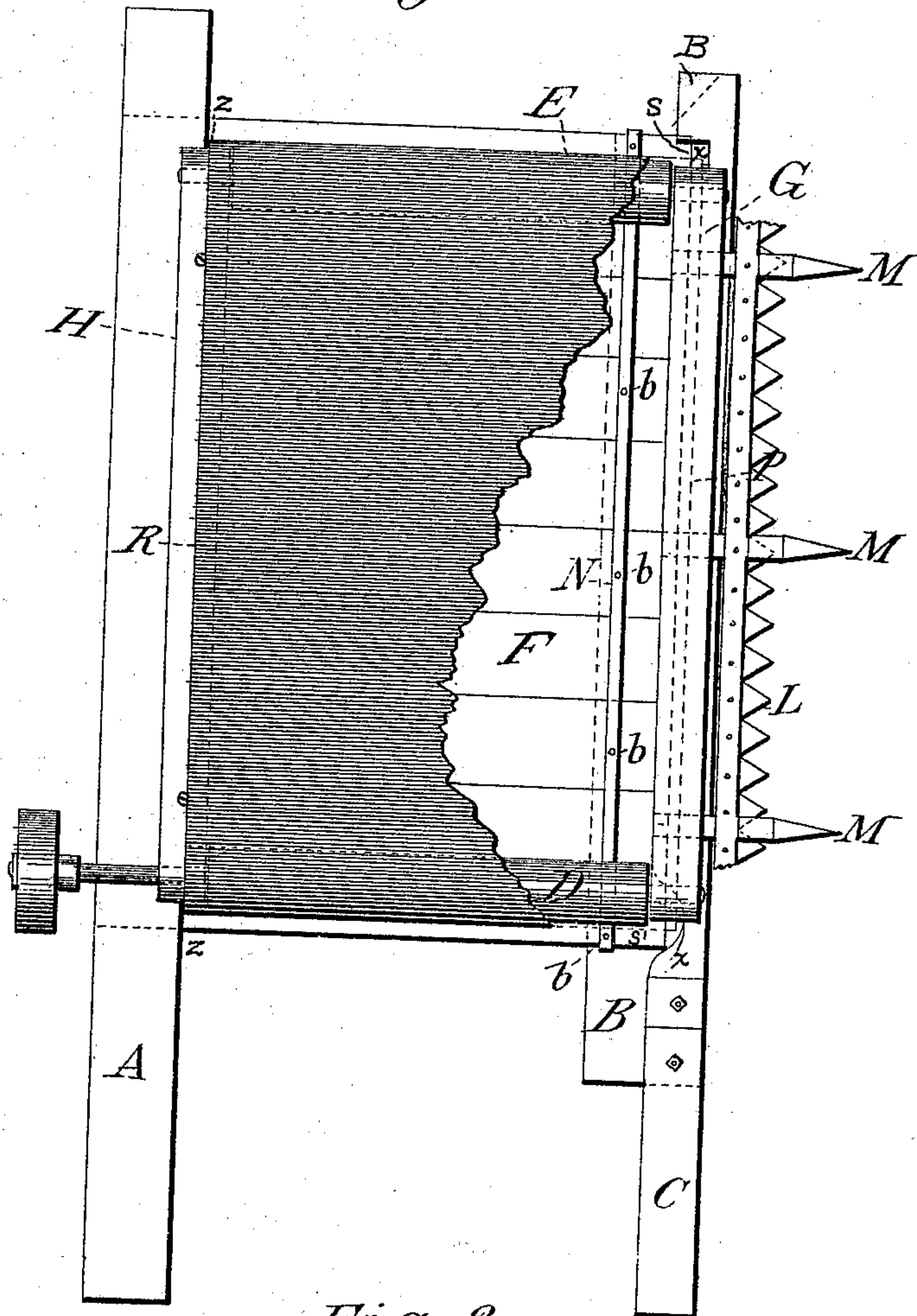


Fig. 3.

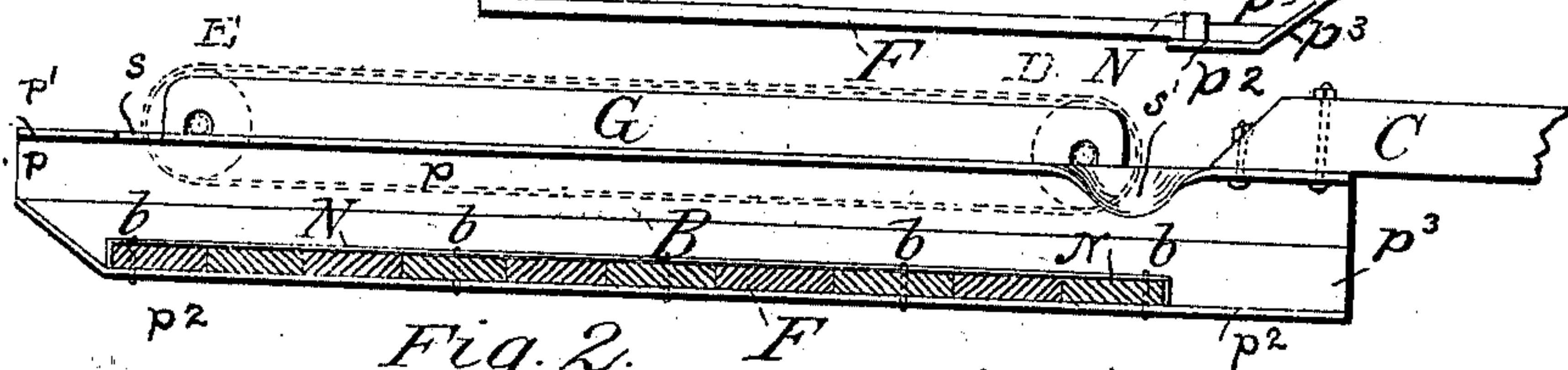
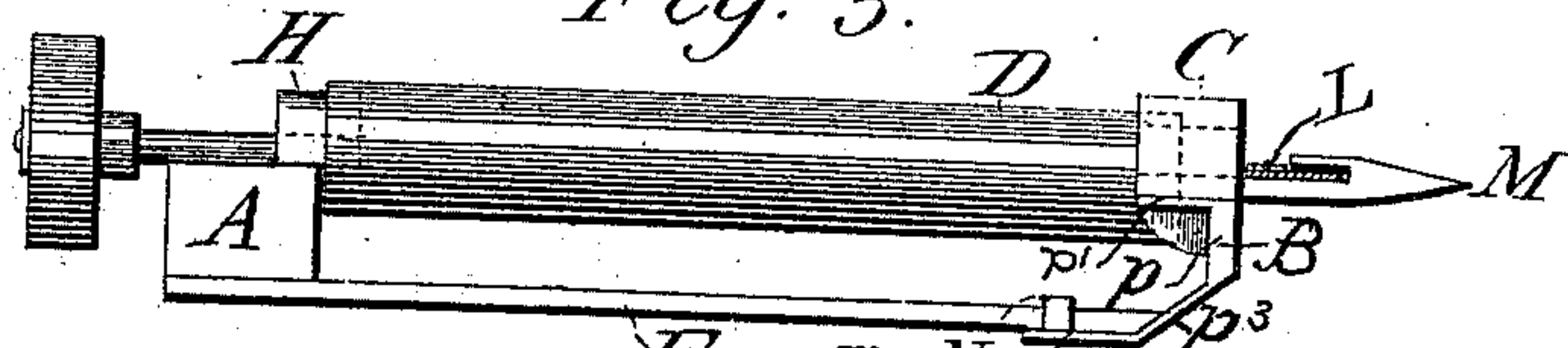
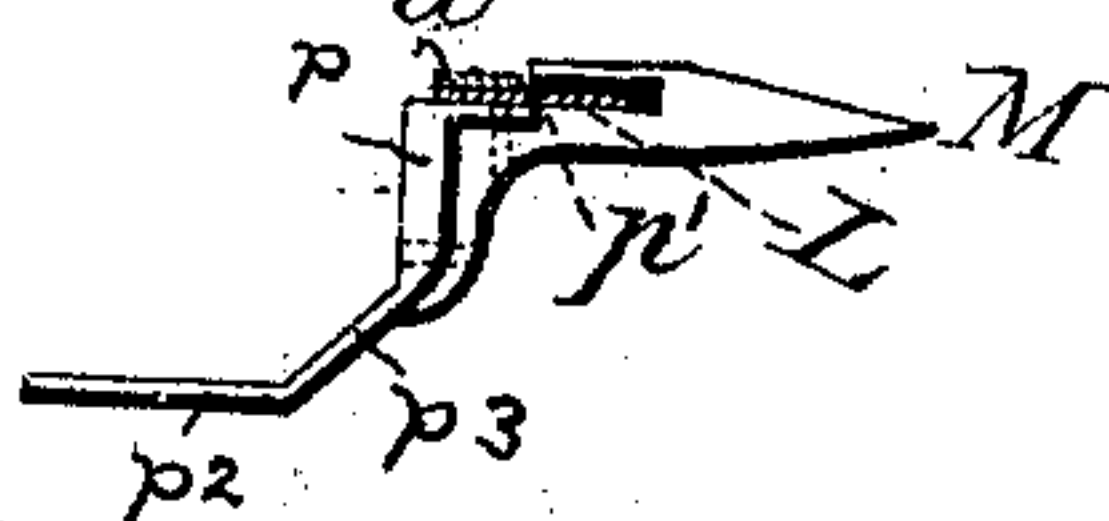


Fig. 2.

Fig. 4.



Witnesses:

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HARVESTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 554,318, dated February 11, 1896.

Application filed December 29, 1879.

To all whom it may concern:

Be it known that I, JOHN F. STEWARD, a citizen of the United States, formerly residing at Plano, in the county of Kendall and State of Illinois, but now residing at Chicago, Cook county, in said State, have invented certain new and useful Improvements in Harvesting-Machines, of which the following is a specification.

My invention relates to that class of harvesters wherein the grain as it is severed by the knives falls upon an endless apron, carrier or conveyer, which delivers the swath to an elevator or into the receptacle of an automatic binder. As heretofore usually constructed, these have had a thick finger-bar, ordinarily the front sill of the platform, necessitating a corresponding distance between the front edge of the canvas carrier and the sickle, the result being that the butts of the cut grain, projecting so far over the edge of the moving carrier, were retarded by being dragged along the fixed surface of the finger-bar. Again, the space thus left between the carrier and sickle afforded lodgment for short weeds and grass that so often grow in fields of grain, which, accumulating, check and often prevent the perfect movement of the swath. In order to overcome these defects the space between the front edge of the carrier and the sickle must be reduced and so far as possible abolished, and the primary object, therefore, of my invention is to reduce such space to a minimum. This object I propose to attain, first, by the employment of a metal finger-bar of novel construction, and, second, by certain accessory combinations, relative arrangement of the parts, and incidental details of construction, tending to throw the front edge of the carrier farther forward, while retaining the full unimpaired strength of the finger-bar, all as will appear from the ensuing description.

In the drawings, Figure 1 is a top plan view of the platform of a harvester embodying my invention. Fig. 2 is a longitudinal section through the platform on a line in rear of and parallel with the finger-bar; Fig. 3, an end elevation, in vertical section, of said plat-

form; and Fig. 4 is a view of alternative form or modification of the finger-bar proper.

A is the rear sill of an ordinary harvester, and B the metal finger-bar, herein occupying the place of and serving as the front platform-sill. Overlapping the inner end of this finger-bar and bolted thereto and practically a rigid extension thereof is a beam or timber C, constituting the front elevator-sill. At each end of the platform are the usual drums or rollers D and E for supporting and operating the endless apron or carrier, and boarding F, as customary in this type of machines, forms a close and imperforate bottom to the platform-frame.

The front apron-slide or guide-bar, G, which also at its ends affords bearings for the front gudgeons or journals of the apron-rollers, is secured to and supported by the upper part of the metal finger-bar in a manner presently to be explained, and the rear slide, H, at the end of which are placed or formed the bearings for the rear gudgeons of said rollers, is fastened to the rear sill in any suitable and convenient way permitting it to properly subserve its functions.

L represents the sickle, M the guard-fingers through which the sickle plays and of which there will be the usual number relatively to the sickle-sections, and N is a metallic strip placed above the bottom boards of the platform, over and parallel with an underreaching flange of the finger-bar and provided with holes corresponding to holes in said flange and receiving rivets *b*, whereby the forward ends of these bottom boards are secured and sustained upon the finger-bar.

The finger-bar is constructed with a main or vertical body part *p*, which should be thick enough to do its share in stiffening the whole bar or front sill; but as upon the thinness of this vertical body part depends the reduction of the space between the edge of the canvas and sickle I prefer to add a horizontal strengthening-flange *p'* at the top, extending either to the front, as indicated in Fig. 4, or to the rear, as indicated in Fig. 3. Should the latter arrangement be adopted the front apron-slide may be laid upon and secured to

such rearward extension beneath which the lower ply of the apron will consequently project and run in the operation of the machine.

When, on the other hand, the forwardly-extending flange is employed it may be carried as far forward at least as the front edge of the sickle-bar and will form a way upon which said bar may run, while at the same time serving as a point of attachment for the underlying guard-fingers.

At the base of the finger-bar is another rearwardly-extending flange p^3 rigid therewith to reach beneath, receive and support the front ends of the bottom boards of the platform, these being laid upon said flange and abutting against the bar and secured by rivets, as already casually explained. The vertical body part of the finger-bar is preferably connected with this underreaching or rearwardly-extending flange by an intermediate inclined or sloping web p^3 , thereby giving a beveled exterior to the bar, doing away with the objectionable right angle heretofore generally found at this point, which had the effect of running down leaning grain and enabling the guard-fingers and cutters to be brought somewhat nearer the ground. This sloping web also serves as a shield for the protection of the ends of the bottom boards, although such shield would be afforded by the body part itself were the intermediate web to be omitted.

The canvas apron or carrier is intended to extend in front close up to the rear face of the vertical web of the finger-bar, as indicated by the dotted line x , giving the location of the front edge of the apron, while the line z gives the line of the rear edge. It will be observed by reference to these lines and the figures (2 and 3) which show them that the width of the canvas or apron is greater than the length of the rollers. This arrangement is in order to prevent any straws that might come under the edge of the canvas from winding around the journals of the rollers. The front slide being thus brought beneath the apron, provision must be made for the passage of the lower ply of the belt. There is no trouble about this when the front slide or guide bar is riveted to the rear vertical face of the finger-bar and projects therefrom, since the apron can run over its ends; but when a rearwardly-extended flange is employed it must be notched its entire depth at each end of the guide-bar. No special strength being required at the outer end of the bar the notch s at that point may be cut right through the flange up to the rear wall of the body part; but at the inner end it is undesirable to weaken the finger-bar in any way. Therefore I prefer to fold down the flange, uncut and unbroken, at this point, to provide the necessary space for the notch s' , thus retaining the whole strength of the metal practically unimpaired. Beyond this notch the rearwardly-extending upper flange will be continued to

the end of the finger-bar, and will be found convenient as a seat for the overlying end of the front elevator-sill, whereby the latter may be bolted securely to said bar.

As shown by dotted lines in Figs. 1 and 3, the guard-fingers are secured by having their shanks seated in mortises or notches in the under side of the front apron-slide; but in practice I find it preferable to rivet them to the horizontal upper flange of the finger-bar, or in case such flange is omitted they will be riveted to the forward face of the vertical web or upstanding body part, as in Fig. 4, and then the front apron-slide may be bolted to the rear face of this body part.

I claim—

1. The combination of the angular metal finger-bar, the platform-boards, and the front apron-guide, the finger-bar having the vertical body portion, a lower rearwardly-extending horizontal flange, to which the platform-boards are secured, an upper horizontal flange, to which the apron-guide is secured, and the inclined web between the bottom horizontal flange and the vertical body portion, substantially as described.

2. The combination of the angular metal finger-bar, the platform-boards, and the front apron-guide, the finger-bar having a bottom horizontal flange, to which the platform-boards are secured by means of the overlying strip N and rivets, a vertical body portion, an inclined web between the bottom flange and the body portion, and a top horizontal flange to which the front apron-guide is secured, substantially as described.

3. The combination of the angular metal finger-bar, the platform-boards, and the front apron-guide, the finger-bar having the vertical body portion, a lower rearwardly-extending horizontal flange, to which the platform-boards are secured, the upper horizontal flange, and the inclined web between the horizontal lower flange and the vertical body portion, against which the beveled ends of the platform-boards abut, substantially as described.

4. The combination of the angular metal finger-bar, the platform-boards, and the front apron-guide, the finger-bar having a vertical body portion, a horizontal flange at the top thereof, and a rearwardly-inclined web at the bottom, connecting said body portion to a rearwardly-extending horizontal flange, to the upper side of which the platform-boards are secured, the apron-guide being secured to the top of the upper flange, substantially as described.

5. The combination of the angular metal finger-bar, the platform-boards, and the front apron-guide, the finger-bar having a vertical body portion, a flange at the top thereof, upon which the apron-guide rests, a rearwardly-extending bottom flange, upon which the platform-boards are riveted, and an inclined web between the bottom flange and

the body portion, against which the beveled ends of the boards abut, the top flange being notched near its outer end, as at *s*, and being bent down near its inner end, as at *s'*, to permit the apron to pass the flange as it travels around the rollers at the ends of the platform, and allow it to run upon the upper surface of the overlying guide, substantially as described.

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Witnesses:

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