

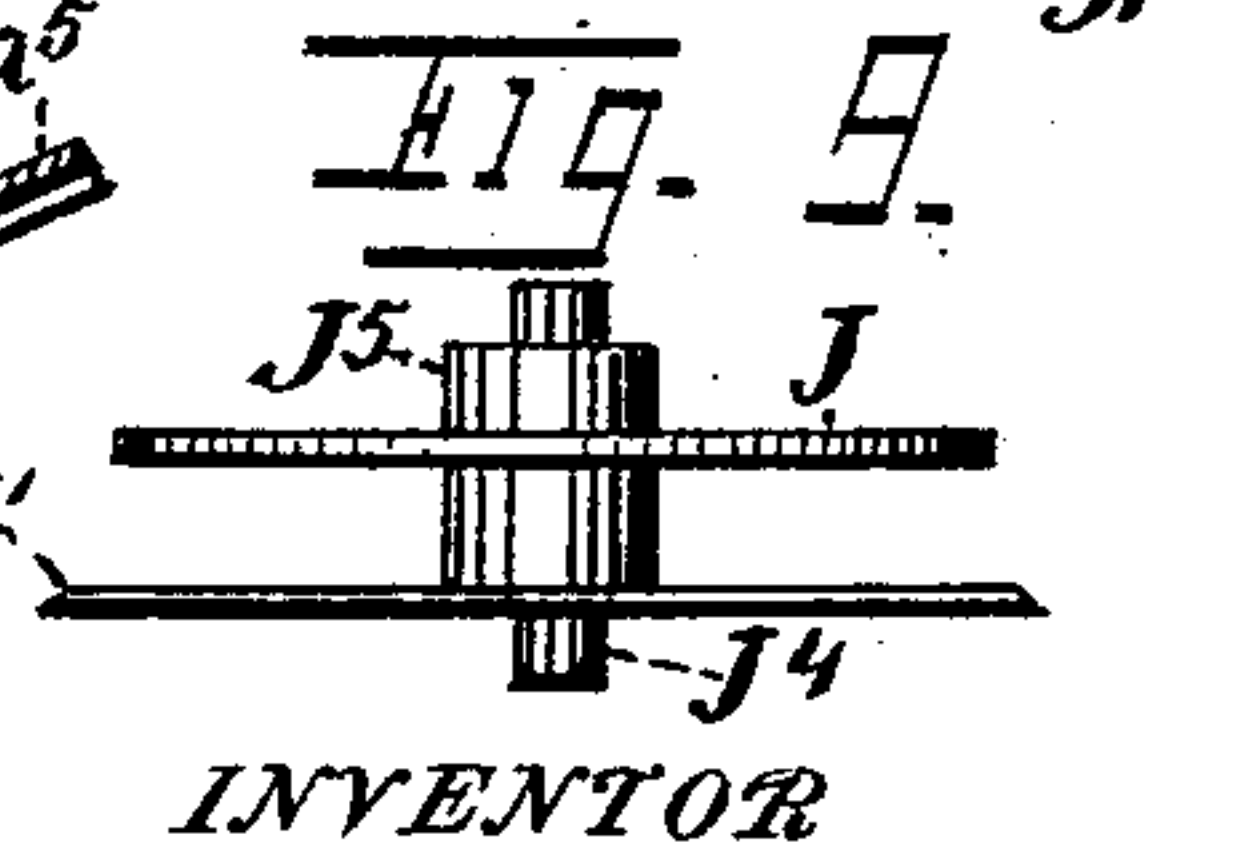
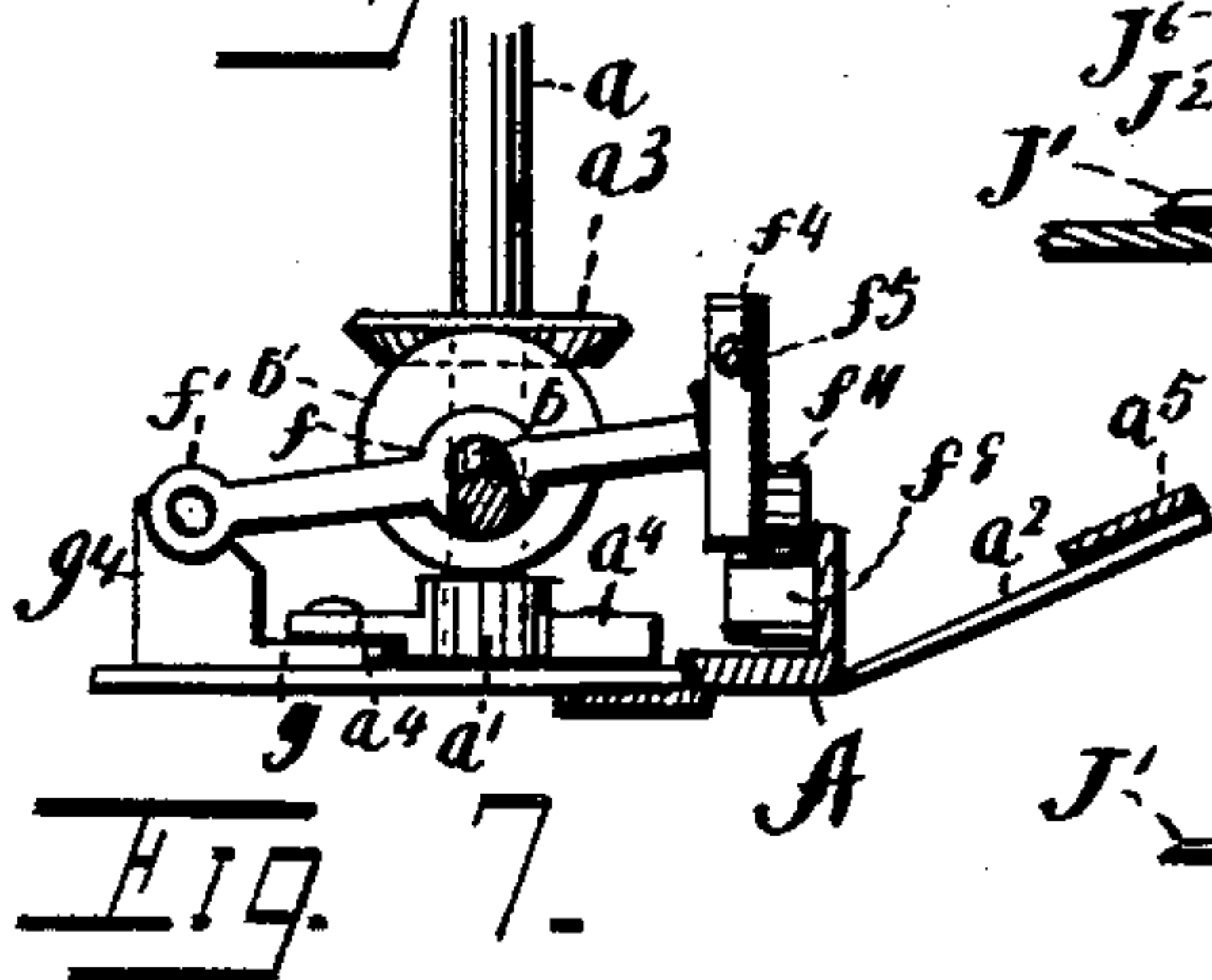
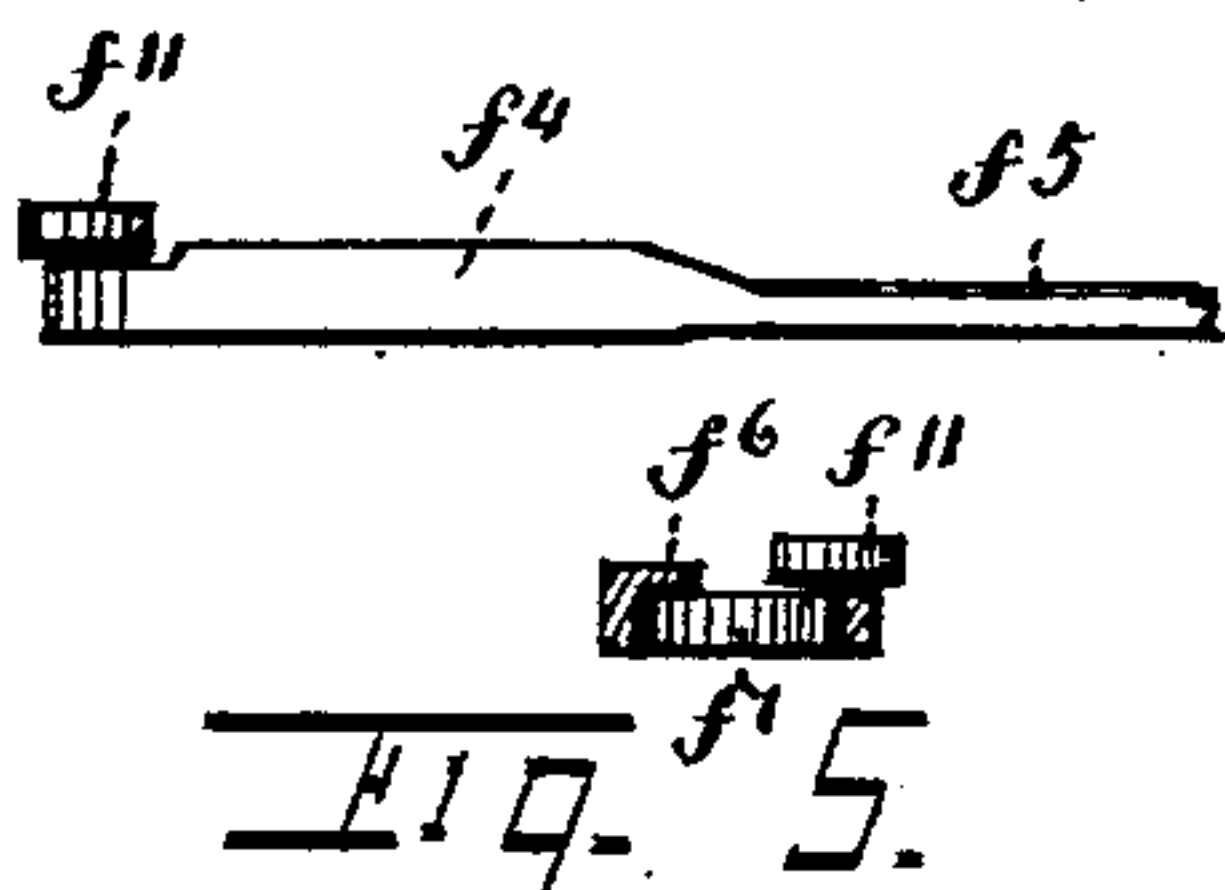
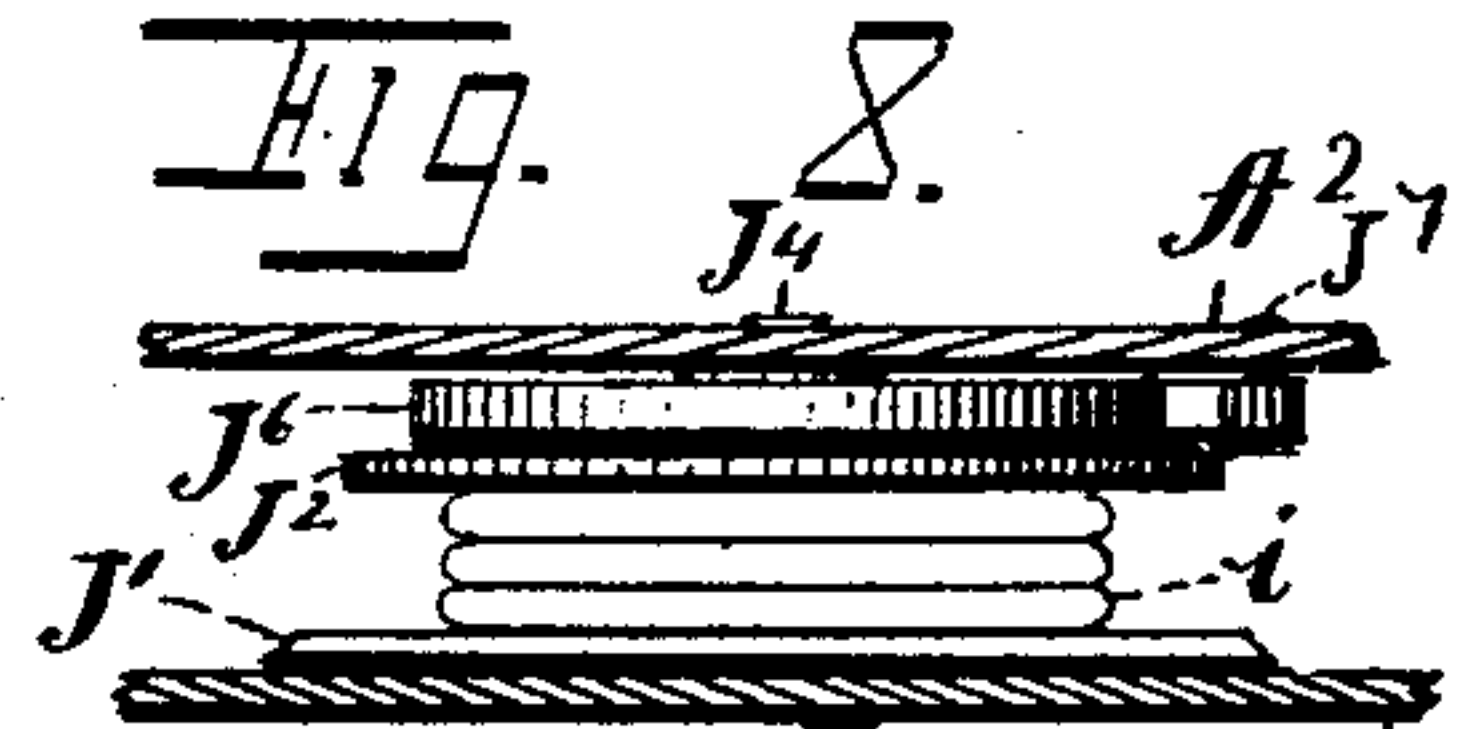
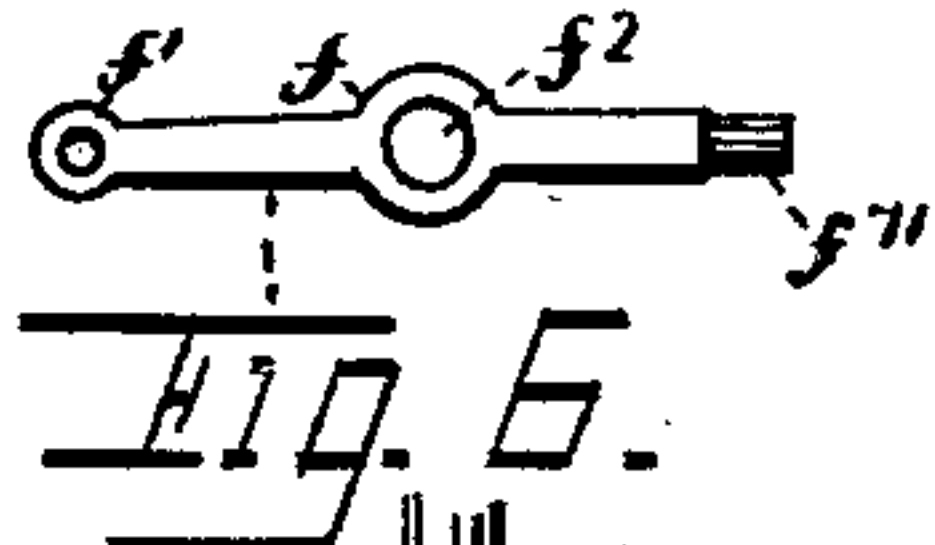
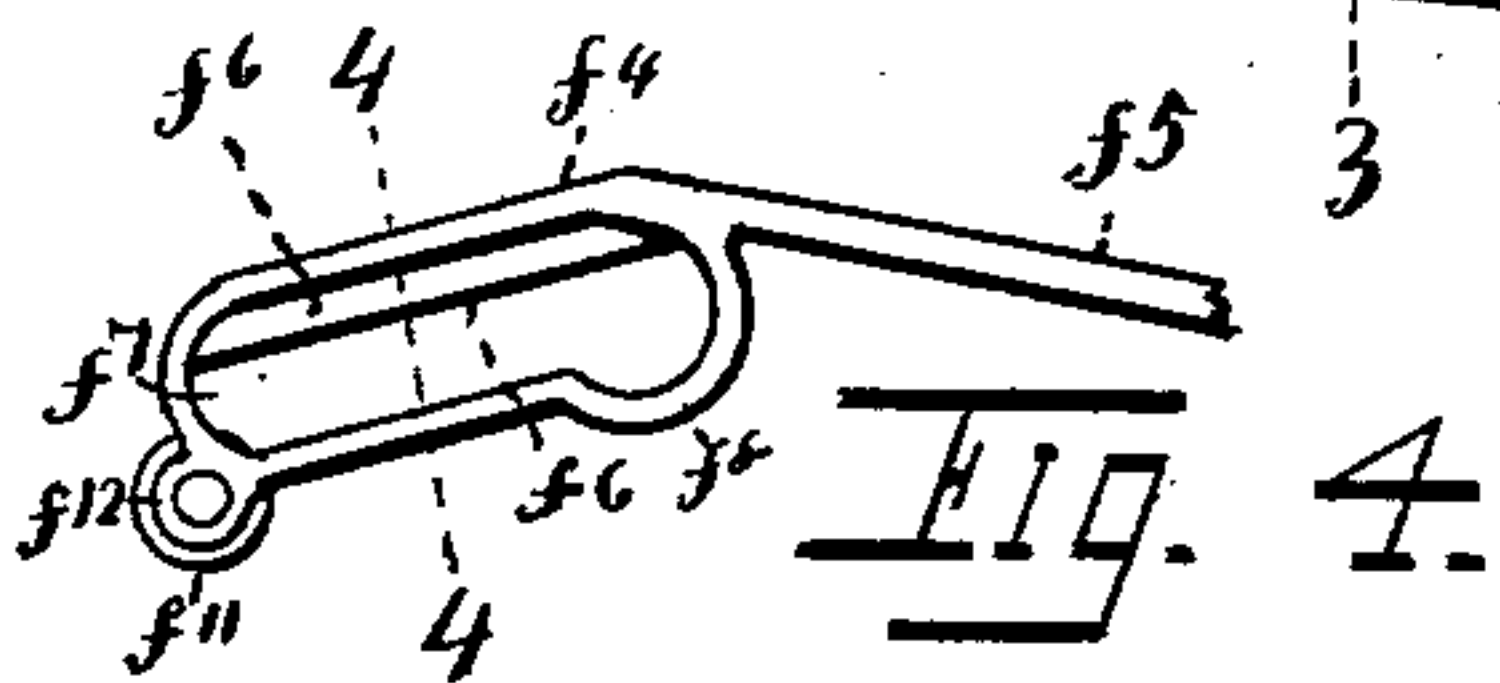
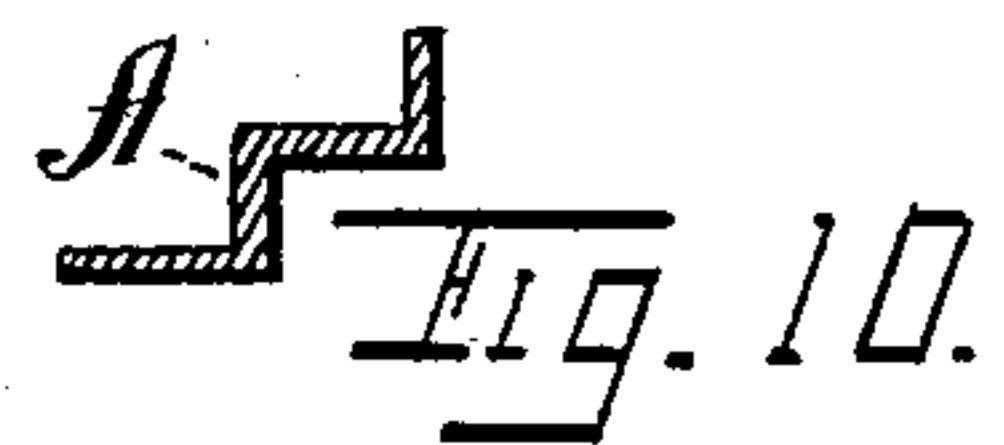
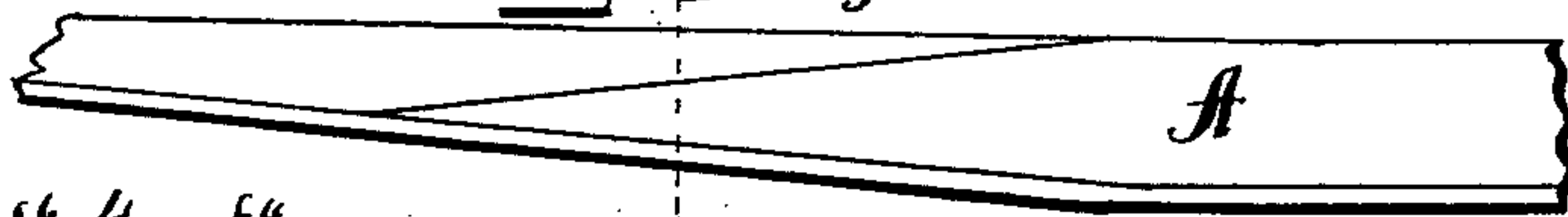
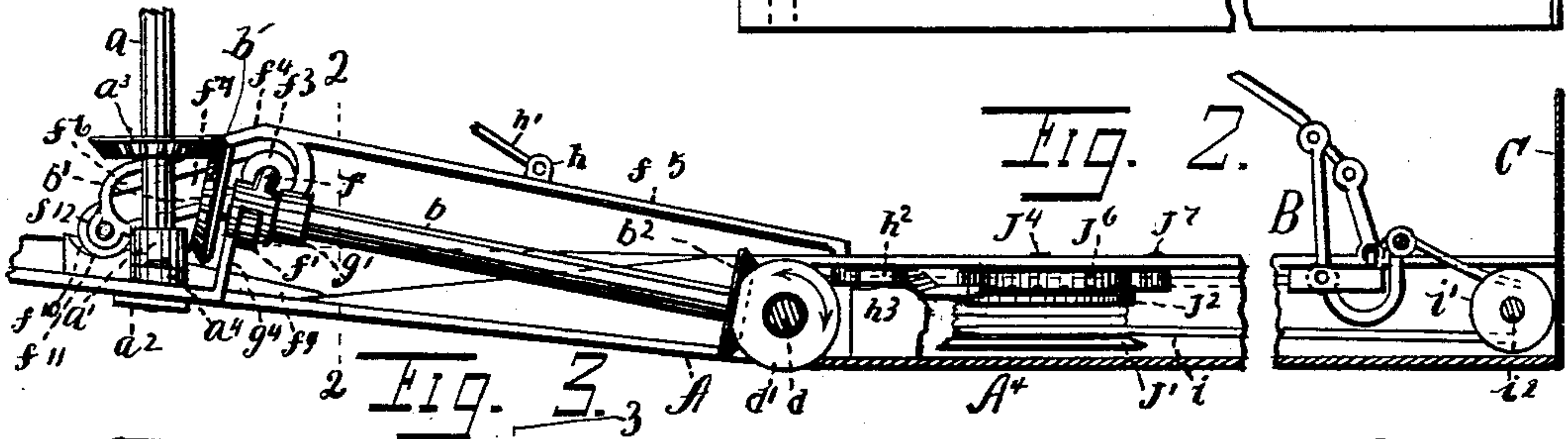
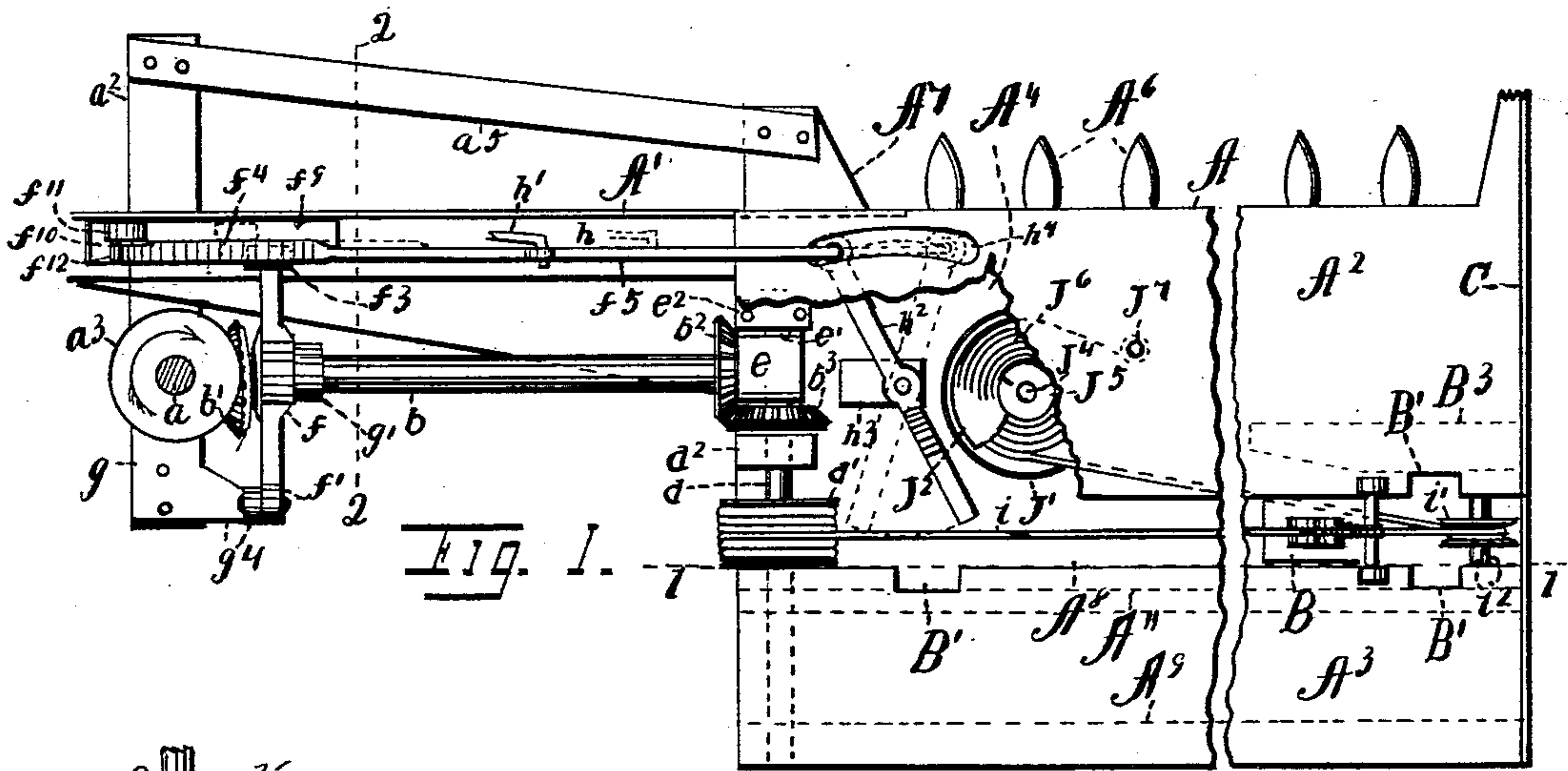
(No Model.)

G. SCHUBERT.

GEAR SHIFTING MECHANISM FOR HARVESTERS.

No. 481,202.

Patented Aug. 23, 1892.



WITNESSES

INVENTOR

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UNITED STATES PATENT OFFICE.

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GEAR-SHIFTING MECHANISM FOR HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 481,202, dated August 23, 1892.

Application filed August 3, 1891. Serial No. 401,612. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SCHUBERT, a citizen of the United States, residing at Walnut, in the county of Bosque and State of Texas, have invented a certain new and useful Gear-Shifting Mechanism for Harvesters, of which the following is a specification.

This invention relates to an improvement in gear-shifting mechanism for conveyers for harvesters and binders, and it has reference more especially to a gear-shifting mechanism for a reciprocating conveyer in which a gear is engaged and automatically disengaged as the conveyer nears the end of its stubbleward movement.

Referring to the drawings, Figure 1 is a plan view of a harvester-platform provided with my improvements, the upper plate of the platform being partly broken away to show parts below in full lines, and the upper end of the vertical shaft *a* is also broken away. Fig. 2 is a view looking toward the front of the machine from line 1 1, Fig. 1. Fig. 3 is a detail view of the finger-bar from the rear. Fig. 4 is a side view of the shifting guide or bar. In Fig. 5 is shown an edge view of same and a cross-section on line 4 4. Fig. 6 is a detail view of the movable bearing. Fig. 7 is a view on line 2 2 of Figs. 1 and 2, looking stubbleward. Fig. 8 is an enlarged view of the drum provided with the spring and cord. Fig. 9 is a detail view of the drum. Fig. 10 is a cross-section of the finger-bar, taken on line 3 3 of Fig. 2.

Referring to the drawings, A designates the finger-bar. A' is a vertical flange on its front edge, extending from the shoe A' to the frame of the harvester. (Not shown in the drawings.)

A⁶ are the usual guards secured to the front edge of the finger-bar A.

A⁴ is the lower plate of the platform secured with its front edge to the lower flange of the finger-bar and with its rear edge to the sill A⁹. (Shown in Fig. 1 in dotted lines.)

A² and A³ indicate the upper plates of the platform. The plate A² is secured with its front edge to the finger-bar and resting with its rear on the bearing *d*² and block B³. (Shown in dotted lines.) A slot *h*⁴ is made in the plate A², as shown in Fig. 1, in which the rod *f*³ operates. The plate A³ is secured

to the sills A⁹ and A¹¹. (Shown in dotted lines in Fig. 1. A slot A⁸ is left between the plates A² and A³, and notches B' are formed on the inwardly-projecting edges of the plates A² and A³ for the operation of the conveyer.

C designates the grainboard secured to the plates A², A³, and A⁴ and to the finger-bar in any well-known manner.

a designates a vertical shaft journaled with its upper end in a bearing supported by the harvester-frame, (not shown,) and with its lower end in a bearing *a'*, supported on the bar *a*², and provided with ears or lugs *a*⁴, extending on the bracket *g* and the finger-bar A, as shown in Fig. 7, and provided with a bevel-pinion *a*³ in position to engage with bevel-pinion *b*'.

b designates a shaft slightly inclined and extending from the vertical shaft *a* to the inner end of the platform and journaled with its grain end in a pivoted bearing *e* and in a movable bearing *f* near its stubble end adjacent the bevel-pinion *b*', and provided with a collar *g*' adjacent the movable bearing *f*, and a bevel-pinion *b*' on its stubble end in position to be engaged and disengaged with the bevel-pinion *a*³, and a bevel-pinion *b*² near its grain end in position to engage with bevel-pinion *b*³ on the shaft *d*. Said shaft *d* is located on the inner or stubble end of the platform and is journaled in a bearing *d*² near its front end, and, extending through the strip A¹¹ and journaled with its rear end in the sill A⁹ and provided with a drum *d*' near the center of the slot A⁸ and a bevel-pinion *b*³ adjacent the front side of the bearing *d*² and in mesh with the bevel-pinion *b*², the front end of said shaft *d* projects through the bevel-pinion *b*³, for the purpose hereinafter stated.

e is a pivoted bearing for the grain end of shaft *b*, anchored with its rear side on the front end of shaft *d*, and provided with a stud or trunnion *e*' on its front side, journaled in the bracket *e*², secured to the rear flange of the finger-bar A.

f is a movable bearing having a perforation *f*² near its center to receive the shaft *b*, and having its front end slightly reduced to enter a roller *f*³. (Shown in Fig. 2 and in dotted lines in Fig. 1.)

g is a bracket secured to the rear end of the bar *a*², as shown in Fig. 1, and provided with

a nearly vertical arm g^4 , projecting slightly grainward, and of proper height to form a pivot for the rear end f' of the movable bearing f .

- 5 f^4 is a guide having a slot f^7 and a flange f^6 projecting partly over the slot f^7 on the front side of the guide. Said slot f^7 has a depression f^8 in its upper or grain end and a lug f^{12} on its lower and stubble end, provided with a stud to receive the antifriction roller f^{11} , to operate on the block or track f^9 , which is secured to the finger-bar A and provided with a depression f^{10} near its stubble end. Said track is made inclined, as shown in Fig. 2, and is secured to the finger-bar A, adjacent the vertical flange A' and opposite the vertical shaft a . The guide f^4 is formed on the stubble end of the rod f^5 . Said rod f^5 extends grainward to the platform and is pivoted to the front end of a lever h^2 and provided with a lug h near the center of its length, from which lug a draw-rod h' is extended to the operator's seat. (Not shown in the drawings.) The lever h^2 is pivoted on a block h^3 , secured in the platform near the stubble end of the latter, and extends its rear end in the passage-way of the conveyer B and with its rear end depressed to operate beneath the cord i .
- 30 J^5 designates a drum rigidly secured to its axle J^4 , by which it is pivoted in the platform in the plates A² and A⁴, near the stubble end of the platform, and said drum is provided with flanges J² and J', as shown in Fig. 9, with the lower flange J' having its edge beveled from the upper side. Said drum J⁵ is provided with a spring J⁶, having its inner end secured to the drum J⁵ and its outer end secured to a stud J⁷, secured in the plate A², as shown in dotted lines in Fig. 1, and shown in Figs. 2 and 8.

i designates a cord secured with one end to the drum d' and extending over a sheave i' at the grain end of the platform, and secured with its other end to the drum J⁵ and wound on said drum J⁵ a proper number of times to allow the conveyer B to move from the grain end to the stubble end of the platform. Said conveyer B is secured a proper distance from the end of the cord i , secured on the drum d' , to allow it to move to the grain end of the platform. The sheave i' is secured near the center of the slot A⁸ on its shaft i^2 , which has its bearings in the block B³ and strip A¹¹. (Shown in dotted lines in Fig. 1.)

I prefer to place the drum J⁵ near the stubble end of the platform to avoid the employing of guide-rollers to guide the cord on the sheave i' and in returning to the drum J⁵. The cross-bar a^2 is screwed to the finger-bar A near its stubble end.

a^5 is a bar extending from the front end of the bar a^2 to the shoe A⁷.

The operation is as follows, viz: When the operator desires to start the conveyer, he draws the draw-rod f^5 stubbleward, thus shifts the guide f^4 in the same direction, thereby

elevating the front end of the movable bearing f , which elevates the stubble end of the shaft b , thus engaging the bevel-pinion b' with the bevel-pinion a^3 . The vertical shaft a is rotated in the direction as shown by arrow in Fig. 1 by mechanism of the harvester. (Not shown in the drawings.) As the shaft b is rotated it in turn rotates the shaft d by the bevel-pinions b^2 and b^3 , and the drum d' , being rigidly secured to the shaft d , it is thus rotated with the shaft d and causes the cord i to wind on said drum d' , thus drawing the conveyer stubbleward and unwinding the cord from the drum J⁵. As the conveyer moves stubbleward it moves against the lever h^2 , moving its near end in the same direction, which moves its front end in the opposite direction or grainward, thus moving the guide f^4 in the same direction and disengaging the bevel-pinion b' from bevel-pinion a^3 , thereby discontinuing the forward or stubbleward movement of the conveyer. As soon as the bevel-pinions b' and a^3 are disengaged the spring J⁶ will wind the cord i back on the drum J⁵ again, thus moving the conveyer to the grain end of the platform, where it will remain until again started by the operator, as heretofore stated. The guide f^4 is supported by its antifriction roller f^{11} , which operates on the block f^9 , adjacent the rear side of the vertical flange A', and is prevented from moving rearward by the roller f^3 , operating adjacent the rear or inner side of the flange f^6 .

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

1. In a gear-shifting mechanism for harvesters, the combination, with a bar f^5 , provided with a guide f^4 , having a slot f^7 and a depression f^8 in said slot f^7 , an antifriction roller f^{11} on said guide, a block or track f^9 , having a recess f^{10} , a movable bearing f , pivoted to the harvester-frame with one end and extending with its other end to the guide f^4 , and provided with an antifriction roller f^3 to operate in the guide f^4 , a draw-rod h' , a shaft a , and a shaft b , bevel-pinions a^3 and b' , as shown, and for the purpose described.

2. In a gear-shifting mechanism for harvesters, the combination, with a bar f^5 , provided with a guide f^4 , having a slot f^7 and a depression f^8 in said slot f^7 , an antifriction roller f^{11} on said guide, a block or track f^9 , having a recess f^{10} , a movable bearing f , pivoted with one end to the harvester-frame and extending with its other end in the slot f^7 , substantially as shown, and for the purpose described, shaft a and shaft b , bevel-pinions a^3 and b' , a shaft d , a drum d' on said shaft d , bevel-pinions b^2 and b^3 on the shafts b and d , a pivoted bearing e , a cord i , secured to the drum d' and to a spring-drum J⁵, and attached to a conveyer to operate in the platform and connected to the rod f^5 , a lever h^2 , pivoted in the platform, as shown, and for the purpose described.

3. In a gear-shifting mechanism for harvest-

ers, the combination, with a bar f^5 , provided
with a guide f^4 , having a slot f^7 and a depres-
sion f^8 in said slot f^7 , an antifriction roller
 f^{11} on said guide, a block or track f^9 , having
5 a recess f^{10} , a movable bearing f , pivoted with
one end to the harvester-frame and having an
antifriction roller on its other end to engage
with the slot f^7 , shaft a , and shaft b , bevel-
pinion a^3 and bevel-pinion b' , bevel-pinions
10 b^2 and b^3 on shaft b and d , a pivoted bearing
 e , a drum d' on shaft d , a spring-drum J^5 , piv-
oted in the platform, a sheave i' , a cord i ,

passing over the sheave and having one end
attached to the drum d' and the other end
attached to the drum J^5 , a conveyer attached 15
to the said cord for operating in the platform,
and a lever h^2 , pivoted in the platform con-
nected at one end to the bar f^5 and having its
other end in the path of the conveyer, sub-
stantially as described.

GEORGE SCHUBERT.

Witnesses:

W. T. HOWELL,
J. A. McCLELLAN.