

No. 685,573.

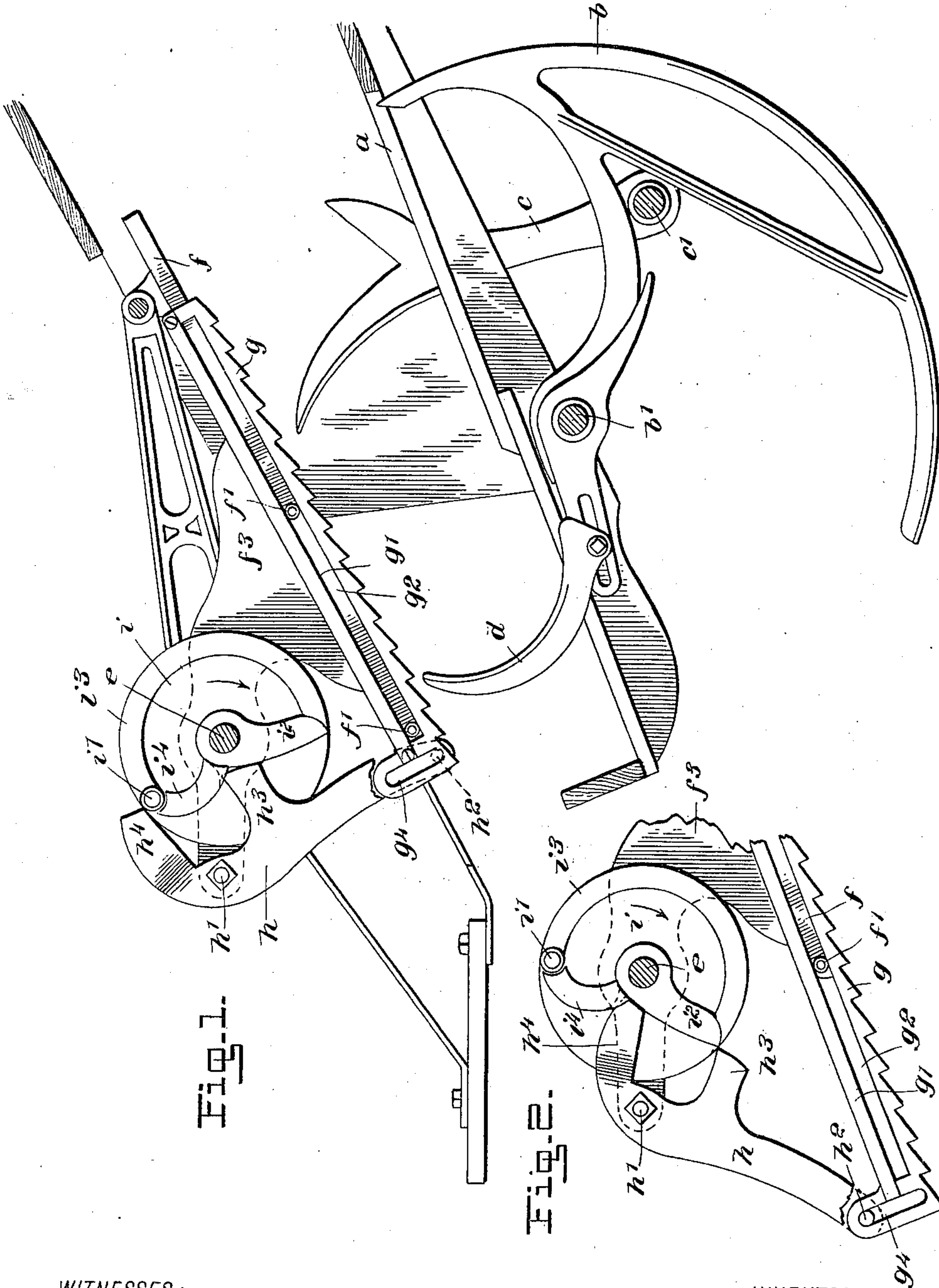
Patented Oct. 29, 1901.

W. M. CLARK & A. M. DAVIS.
BINDER ATTACHMENT.

(Application filed Apr. 5, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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J. B. Owens.

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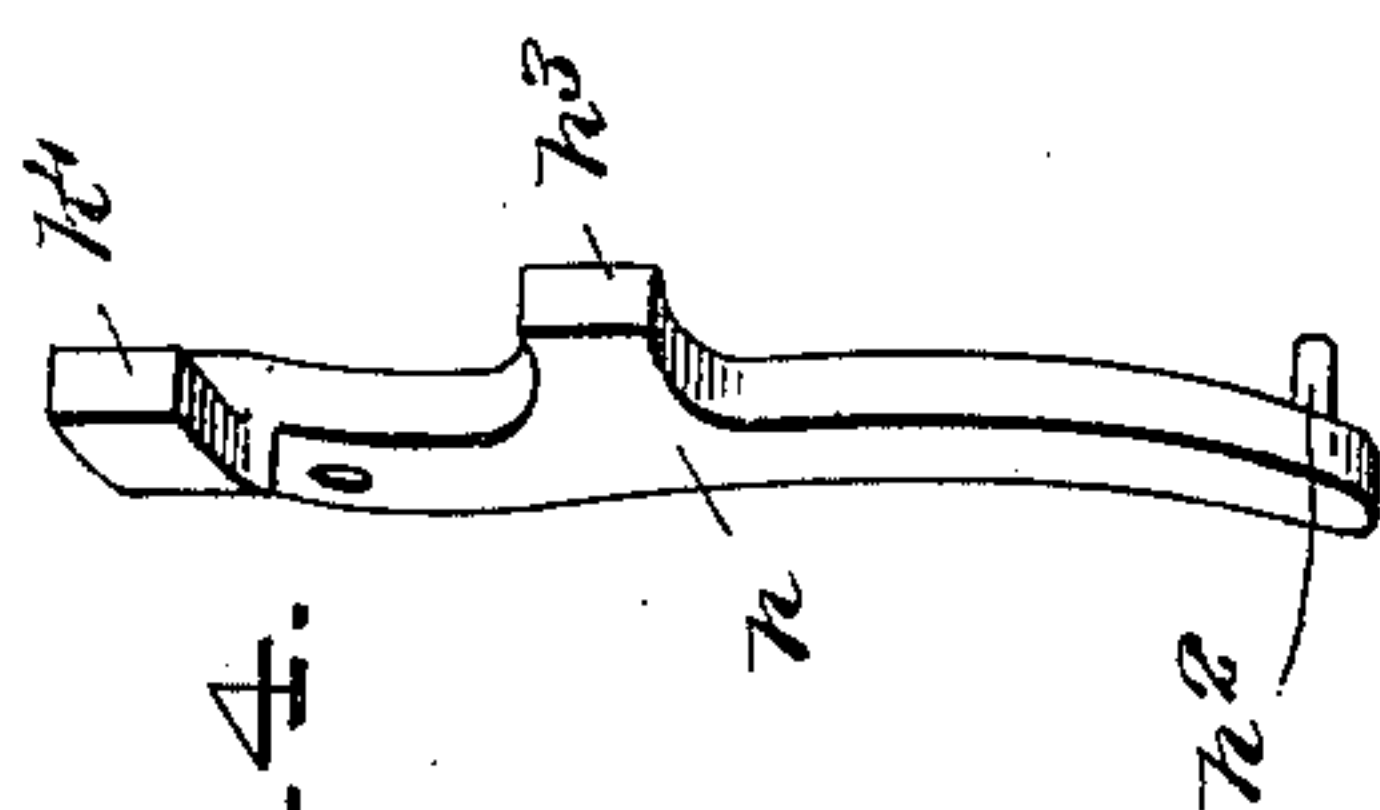


Fig. 4.

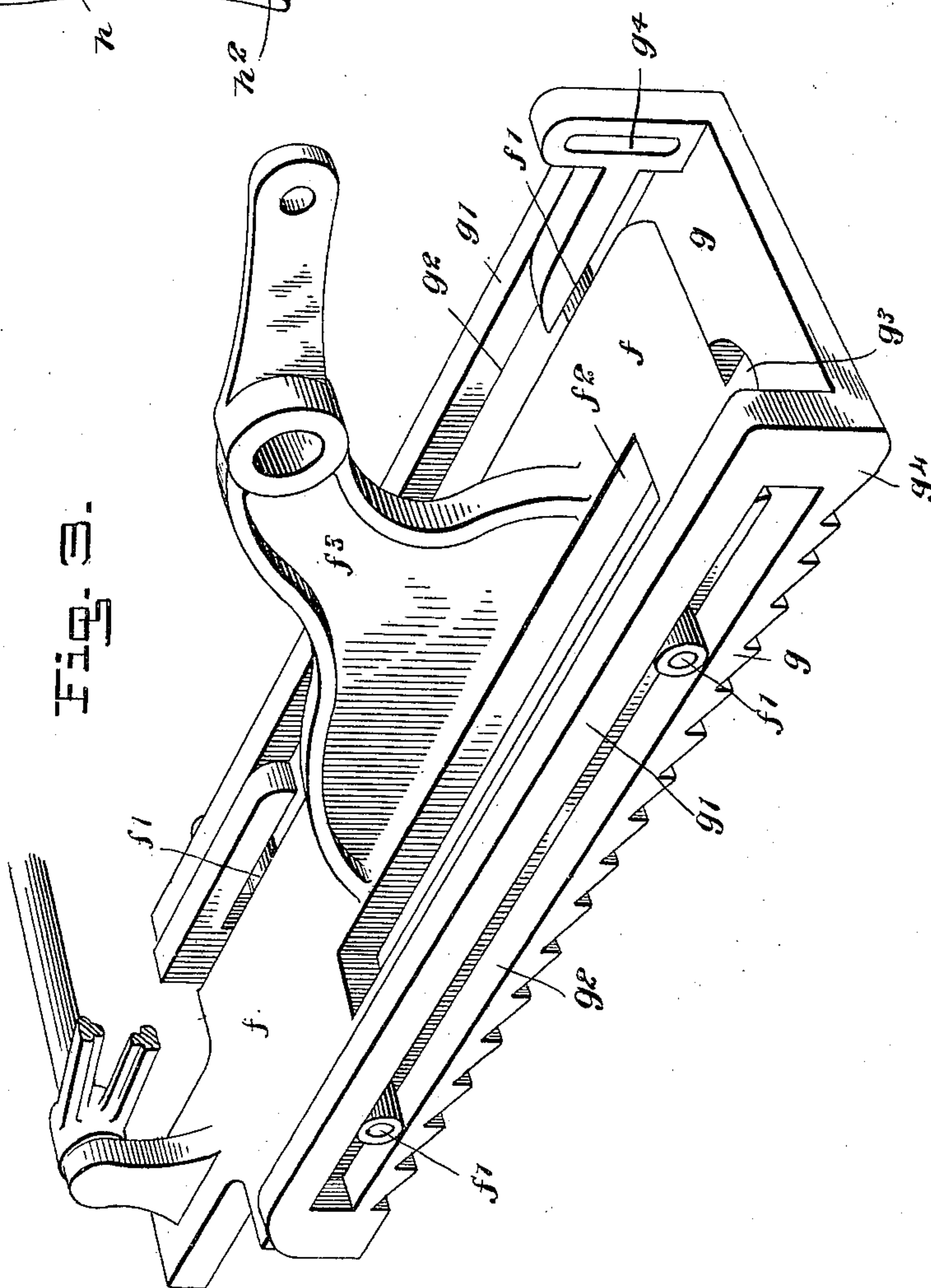


Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM M. CLARK, OF BOSCOBEL, AND ALBERT M. DAVIS, OF MADISON,
WISCONSIN.

BINDER ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 685,573, dated October 29, 1901.

Application filed April 5, 1901. Serial No. 54,445. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM M. CLARK, residing at Boscobel, in the county of Grant, and ALBERT M. DAVIS, residing at Madison, in the county of Dane, State of Wisconsin, citizens of the United States, have invented a new and Improved Binder Attachment, of which the following is a full, clear, and exact description.

10 This invention relates to a binder-breastplate which is mounted to move in unison with the needle, so that as the needle embraces the gavel and crowds the same toward the trip-arm the breastplate will move downward toward said arm and assist the needle in the work of compressing the gavel, thereby relieving the needle of much of the work which it was previously called upon to perform and producing a mechanism which will run easier than that heretofore employed.

The invention is applicable to binders of any sort.

25 This specification is a specific description of one form of the invention, while the claims are definitions of the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

30 Figure 1 is a side view showing the breastplate and the immediately adjacent parts of the binder mechanism. Fig. 2 is a detail view illustrating the action of the cam which drives the breastplate. Fig. 3 is a detached perspective view of the breastplate and the support therefor, and Fig. 4 is a detail view of the lever which is connected with the breastplate.

35 Referring particularly to Fig. 1, *a* indicates the deck of the binder; *b*, the needle carried on its shaft *b'*; *c*, the packer-arm, which is carried on a shaft *c'*.

40 *d* indicates the trip-arm, and *e* indicates the knoter-shaft.

45 Suitably sustained on the framing of the binder is the supporting-plate *f* of the sliding breastplate *g*. This plate has its bottom ratcheted, as shown, and lies under the support *f*, the side edges of the breastplate having upturned flanges *g'*, which, surrounding the supporting-plate *f*, lie at the sides thereof. These flanges *g'* are provided with lon-

55 gitudinal slots *g²*, which receive rollers *f'*, carried on the supporting-plate *f*. By these means the breastplate is mounted to slide in its own plane. The breastplate is formed with a longitudinal slot *g³* therein, arranged for the passage of the needle *b*, and the supporting-plate *f* has a similar slot *f²* for the same purpose. As the needle moves through the grain to form the gavel and crowds it down toward the trip-arm *d* the mechanism, which will be hereinafter described, for operating the breastplate *g* causes this plate to move downward toward the trip-arm simultaneously with the movement of the needle, and the ratcheted lower surface of the breastplate engages the grain and acts with the needle to crowd it down in proper position, thus forming a compact gavel without putting upon the needle all of the work of forcing the grain, which has heretofore been done. The breastplate *g*, in addition to serving to assist the needle to crowd the grain to position, also serves as a knocker-shield.

75 The breastplate may be driven by any desired mechanism connected with the mobile parts of the binder, so as to produce the effect above described. We have here shown an arrangement which we consider best adapted for this purpose and which comprises a lever *h*, fulcrumed at the point *h'* on an arm or extension *f³* of the supporting-plate *f*. This lever *h* has a pin *h²* at its lower end, and this pin slides freely in a slot *g⁴*, formed in the breastplate in a position essentially perpendicular thereto. The lever *h* has two transverse arms, (designated *h³* and *h⁴*, respectively.) These arms lie out of plane with each other, as shown best in Fig. 4, and they work with a wheel *i* on the knoter-shaft *e*, which wheel may, if desired, be the same element that drives the knoter. This wheel is provided with a roller *i'*, which serves to engage the arm *h⁴* of the lever *h*, and formed on the wheel *i* or fastened to the shaft *e*, so as to turn with the wheel, is a wiper-cam *i²*, which works with the arm *h³*. The arm *h⁴* of the lever *h* is so disposed that the cam *i²* in turning will pass under the arm *h⁴*. This arm *h⁴* is arranged in the path of the roller *i'*, so as to be operated by this roller.

100 *i⁴* represents a curved rib arranged to en-

gage and ride along the end of the arm h^4 after said arm clears the roller i' , whereby to hold the lever h against precipitate return.

i^3 represents a circular rib formed in part of the periphery of the wheel i and running inactively under the arm h^4 to steady the lever h during its period of inactivity.

Assuming that the wheel i be turning in the direction of the arrow shown in Fig. 1 and that the parts are in the position shown in said view, the wiper i^2 will strike the arm h^3 of the lever h and throw the lower arm of the lever downward, thus moving the breastplate from the position shown in Fig. 1 to that shown in Fig. 2. This movement places the lever h in the position shown in Fig. 2. The cam i^2 now passes under the arm h^4 of the lever without striking the same, and as the wheel i continues its movement the roller i' will strike the arm h^4 and throw the parts back to their former position.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. In a binder, a slidably-mounted breastplate, and means for sliding the breastplate in time with the gavel-forming mechanism, for the purpose specified.

2. In a binder, a slidably-mounted breastplate, and mechanism working in time with the needle for sliding the breastplate down toward the trip-arm simultaneously with the movement of the needle which embraces the gavel.

3. In a binder, a supporting-plate connected with the framing of the machine, a breastplate slidably mounted thereon, and mechanism connected with the breastplate to slide the same back and forth in time with the

movements of the gavel-forming devices, for the purpose specified.

4. In a binder, a slidably-mounted breastplate adapted to work with the needle in the manner specified, a lever connected with the breastplate and having two transverse arms out of plane with each other, and a wheel having two parts thereon, such parts working respectively with the said arms of said lever to drive the breastplate.

5. In a binder, a slidably-mounted breastplate working with the needle in the manner specified, a lever connected with the breastplate, and means working with the lever to rock the same and drive the breastplate.

6. A binder, having a slidably-mounted breastplate working with the needle in the manner specified, a lever connected with the breastplate and having two transverse arms out of plane with each other, and a wheel having a wiper-cam arranged to work with one arm of the lever and to pass freely under the other arm of the lever, said wheel also having a projected member arranged to strike said other arm of the lever to work the same.

7. In a binder, a movably-mounted breastplate and knoter-shield and mechanism for moving the same toward the trip-arm during the movement of the needle toward the gavel, whereby to assist the action of the needle.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM M. CLARK.
ALBERT M. DAVIS.

Witnesses:

D. B. RICHARDSON,
HUGH MATHEWS.