

D. A. SEARS.
Sulky-Plows.

Patented July 7, 1874.

Fig. 2.

This diagram illustrates a complex mechanical assembly, possibly a part of a printing press or a similar industrial machine. The central vertical shaft is labeled *L*. At the top, there is a horizontal bar *a* connected to a mechanism involving *K*, *K'*, and *t*. Below this, a diagonal rod *d* connects the central shaft area to a horizontal bar *E* on the right. On the left, another horizontal bar *D* is shown, which appears to be part of a larger frame or support structure. Various other components are labeled with letters like *A*, *B*, *C*, *F*, *G*, *H*, *I*, *M*, *N*, *O*, *P*, *Q*, *R*, *S*, *T*, *U*, *V*, *X*, *Y*, *Z*, and numbers like *1*, *2*, *3*, *4*, *5*, *6*, *7*, *8*, *9*, *10*, *11*, *12*, *13*, *14*, *15*, *16*, *17*, *18*, *19*, *20*, *21*, *22*, *23*, *24*, *25*, *26*, *27*, *28*, *29*, *30*, *31*, *32*, *33*, *34*, *35*, *36*, *37*, *38*, *39*, *40*, *41*, *42*, *43*, *44*, *45*, *46*, *47*, *48*, *49*, *50*, *51*, *52*, *53*, *54*, *55*, *56*, *57*, *58*, *59*, *60*, *61*, *62*, *63*, *64*, *65*, *66*, *67*, *68*, *69*, *70*, *71*, *72*, *73*, *74*, *75*, *76*, *77*, *78*, *79*, *80*, *81*, *82*, *83*, *84*, *85*, *86*, *87*, *88*, *89*, *90*, *91*, *92*, *93*, *94*, *95*, *96*, *97*, *98*, *99*, *100*.

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No. 152,771.

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Fig. 3.

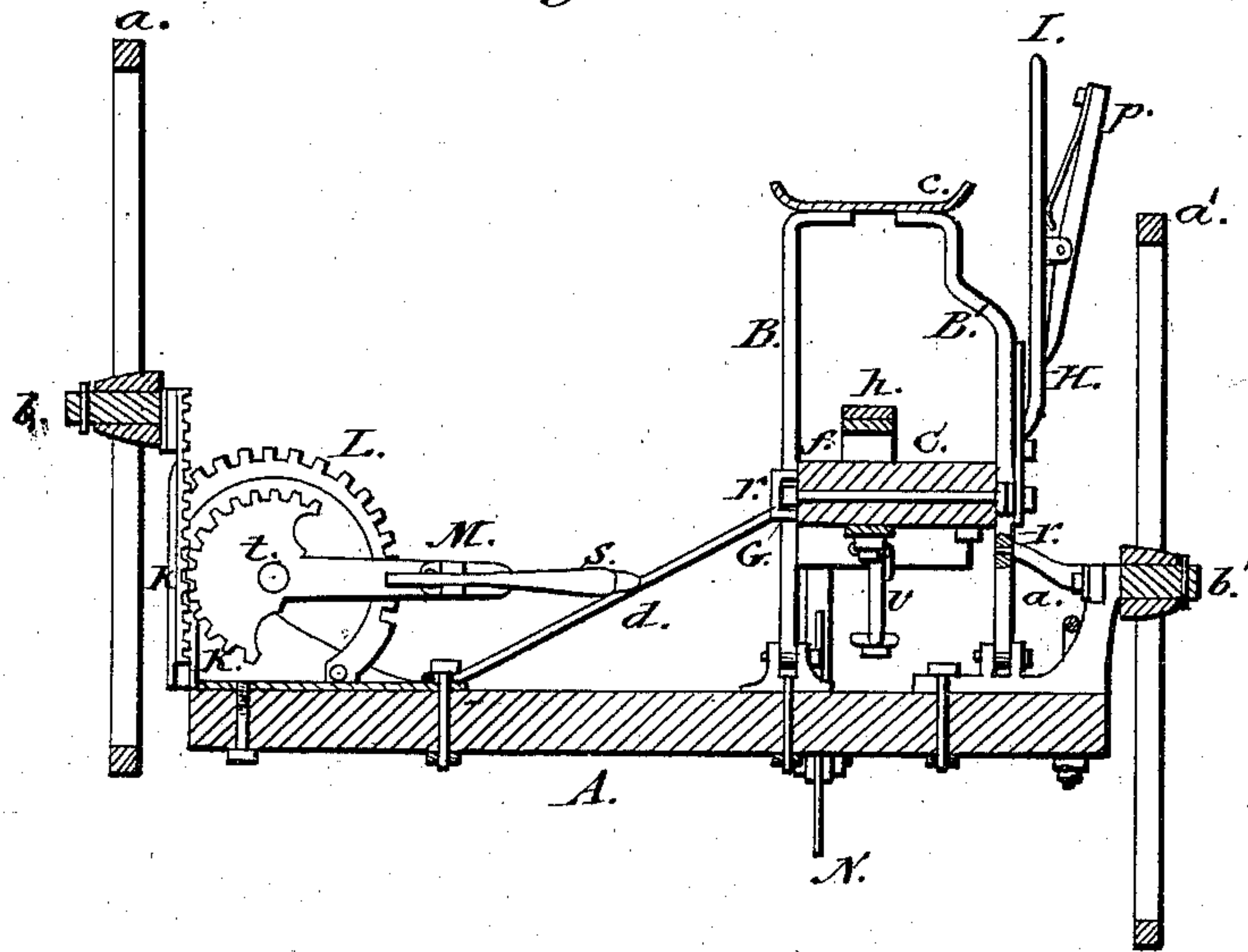
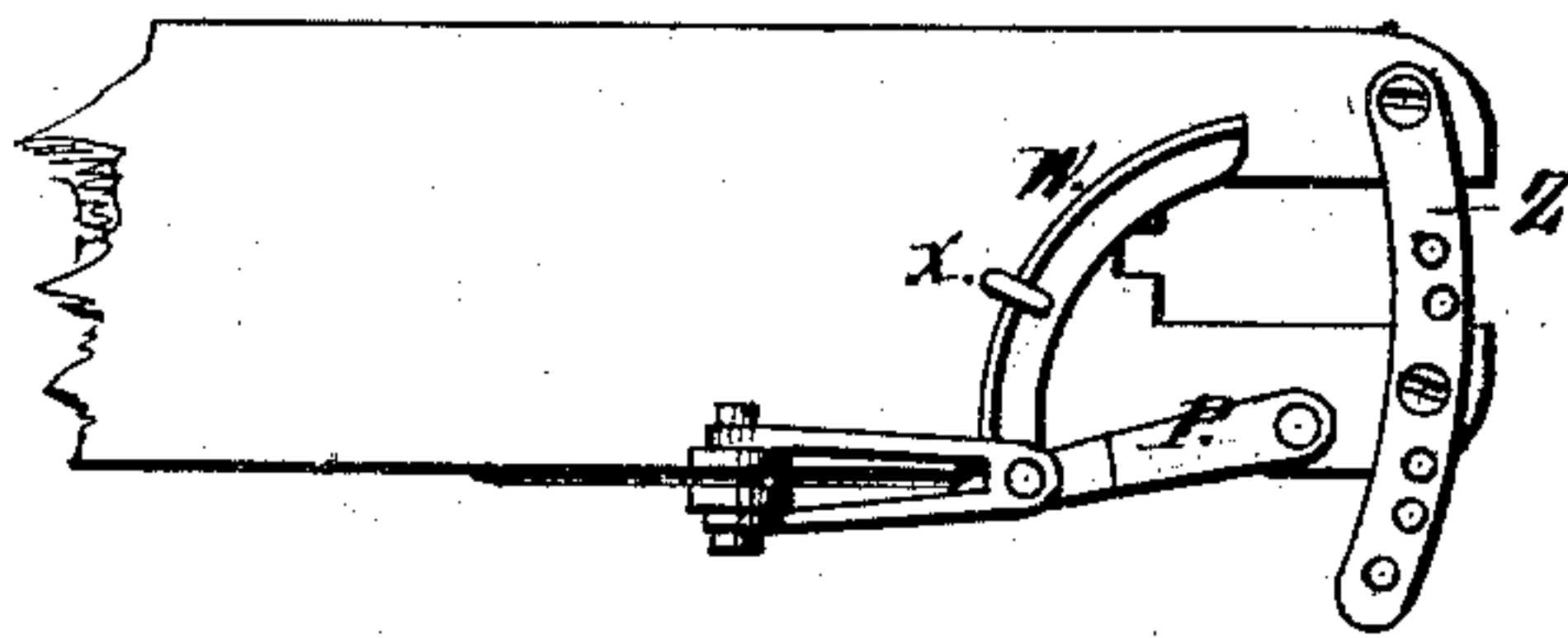


Fig. 4.



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UNITED STATES PATENT OFFICE.

DELOS A. SEARS, OF ROCKFORD, ILLINOIS.

IMPROVEMENT IN SULKY-PLOWS.

Specification forming part of Letters Patent No. **152,771**, dated July 7, 1874; application filed March 15, 1873.

To all whom it may concern :

Be it known that I, DELOS A. SEARS, of Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Sulky-Plows, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings making part of this specification, and in which—

Figure 1 represents a view in elevation of my improved sulky-plow, partly in section, on the line 1 1 of Fig. 2, the near wheel, the sector-rack of the lifting-lever, and one of the seat-standards being broken away to show other parts more clearly. Fig. 2 represents a plan or top view of the machine, the seat, however, being omitted. Fig. 3 is a vertical transverse section through the machine on the line 2 2 of Fig. 2—that is, the line of the axle looking toward the tongue. Fig. 4 represents a view of the under side of the forward portion of the main beam, showing the connection of the rolling colter therewith.

My invention relates to that class of agricultural implements known as sulky or gang plows; and its object is to increase the efficiency of the implement. The subject-matter of my invention is hereinafter specified.

In plows of this class one wheel usually runs in a previously-formed furrow, while the other is frequently required to run on a higher plane. It is desirable that the plow should maintain its horizontal position while doing its work, as any inclination of its share would impede the proper performance of its functions. As this inclination of the plow would necessarily result from allowing the axle to be inclined, as would naturally result from the wheels running on different horizontal planes, some provision must be made to obviate this difficulty, and various means heretofore have been employed to this end. I attain this end by mounting one of the wheels, *a'*, on a crank-arm or bracket-arm, *b'*, projecting above an axle, *A*, so that the axle always runs in a uniform relation to the wheel. This I call the furrow-wheel. The opposite or land wheel *a* is mounted on a crank-axle, *b*, carrying a toothed rack, *k*, which moves endwise vertically in guides *K* on the axle. A segment-rack rocking on a pivot, *t*, gears into

this rack *k*, and serves to raise and lower the land-wheel, or to hold it in any desired position. The rocking segment is controlled by a hand-lever, *M*, provided with a spring-catch, *S*, taking into a sector-rack, *L*, on the axle, parallel to which the lever moves, with its handle in easy reach of the driver. By this means the land-wheel can be adjusted to any desired relation with the axle. (See Fig. 3.) A seat, *c*, for the driver is mounted on two standards, *B B'*, curved as shown, pivoted on the axle, so as to be capable of rocking backward and forward, and provided on their front edges with rack-teeth *h*. (See Fig. 1.) Friction-rollers *r* on the beam *C*, behind the seat-standards, prevent the seat from moving back too far. A beam or frame-piece, *C*, is pivoted at its front end in brace-rods *d*, so as to rock freely vertically therein, its rear end being also free to move vertically between the seat-standards, which serve as guides for it. This beam is raised, lowered, or held in any position desired by means of two sector-gears, *G*, mounted in a rock-shaft on the frame-beam *C*, and gearing into the racks on the seat-standards, and controlled by a hand-lever, *I*, and spring-detent *p*, the latter engaging with a sector-rack, *H*, on the beam *C*. By this means the frame-beam *C* always remains parallel with itself when raised or lowered. A plow-beam, *D*, carrying a suitable plow, *e*, is pivoted to the frame-beam *C* by a joint-pin, *k'*, passing through joint-plates *f* and *g* on the beam *C*, and through corresponding plates *h* and *i* on the front end of the plow-beam *D*.

The plow is thus held rigid vertically, while free to swing laterally, as shown by dotted lines in Fig. 2. It may, however, be held rigidly laterally, when desired, by means of a steady-pin, *l*, passing through holes in the overlapping portions of the plates *f* and *h*.

A tongue, *E*, is pivoted on a horizontal bolt, *e'*, so as to be capable of swinging freely up and down on this pivot. This movement may, however, be restrained, when desired, by a pin, *n*, hooking into a plate, *m*, underneath the tongue and passing up through it, and fastened by a pin or nut above the tongue and under the foot-rest bracket *o*. A rolling colter, *N*, turns in bearings in a yoke, *u*, fitted adjustably on a stem, *V*, and held in any position

desired by a set-screw. The colter swings freely around its stem V, which is mounted on a radius-arm, P, swinging on its pivot in the frame-beam C. A quadrant-flange, W, on the radius-arm serves to lock the latter in any desired position by means of an overlapping hook-bolt, X, (see Figs. 1 and 4,) which passes down through the frame-beam, and is provided with a clamp-nut, x, to regulate the pressure on the quadrant-flange. By this means the colter is not only free to vibrate, but can also be adjusted laterally, as required. A draft-rod, v, is hooked on the frame-beam at its rear end, and attached at its forward end to a draw-bar, Z, by means of a pin, which may be inserted in any one of a series of holes therein, to vary the draft laterally. The double-trees are pivoted to this pin.

By the foregoing description it will be seen that the wheels of my improved plow can be set to run on different levels without disturbing the parallelism of the axle or plow; that the machine can be used either with a stiff or a rigid tongue; that the driver, while in his seat, can raise or lower the frame-beam and plows without canting or tipping them backward or forward; that the plows can be rigidly held, or free to swing laterally, at pleasure; that the colter can readily be adjusted to conform to the plows, and that the draft can also be adjusted to balance the side draft properly. The colter being forward of the axle, and the plow behind it, the former has no tendency to lift the latter, but rather to cause it to run deeper into the ground.

The operation of the plow will readily be understood from the foregoing description.

It is obvious that more than one plow may be used, and my improvements apply as well to gang as to sulky plows.

I claim as my invention—

1. The combination of the wheels, the axle, the frame-beam pivoted on the brace-rods, the seat-standards hinged to the axle and serving as guides to the frame-beam, the segment-gears G, mounted on a rock-shaft in the frame-beam, gearing into racks on the seat-standards, and controlled by the hand-lever, and sector-rack on the frame-beam, all these members being constructed and operating in combination, substantially as described, to raise, lower, and adjust the frame-beam independently of the axle and without tipping the plows, as set forth.

2. The combination of the wheels, the axle, the laterally-swinging plow-beam, the vertically-adjustable frame-beam, and the tongue hinged thereto, to play freely vertically, or to be locked rigidly, when desired, all these members being constructed and operating in combination, as set forth.

3. The combination of the rolling colter, its radius-arms, quadrant-flange, and hook-bolt, these members being constructed and operating in combination, substantially as set forth, to render the colter laterally adjustable.

DELOS A. SEARS.

Witnesses:

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JACOB BEHEL.