

(No Model.)

6 Sheets—Sheet 1.

A. KRAH.

BEVELING SHEARS FOR CARDBOARD.

No. 524,638.

Patented Aug. 14, 1894.

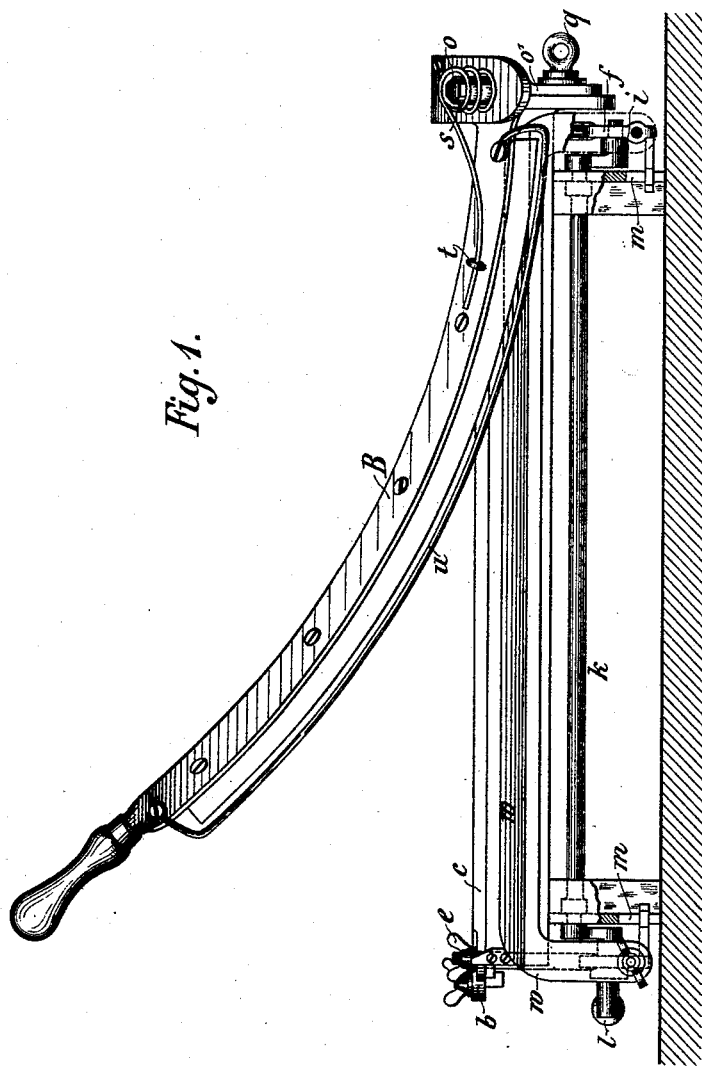


Fig. 1.

Witnesses:
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Robert Corbett.

Inventor:
A. Krah.
James H. Norris
Attorney.

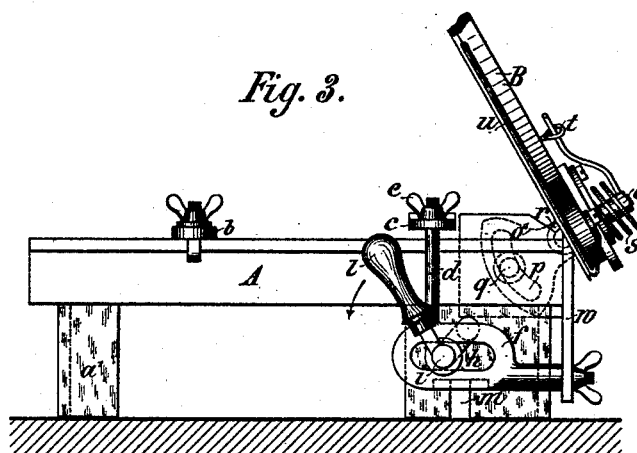
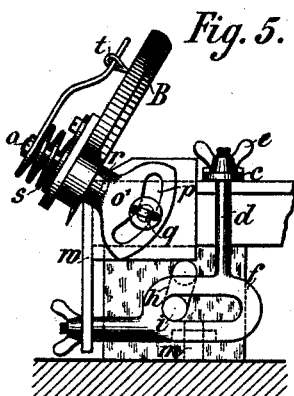
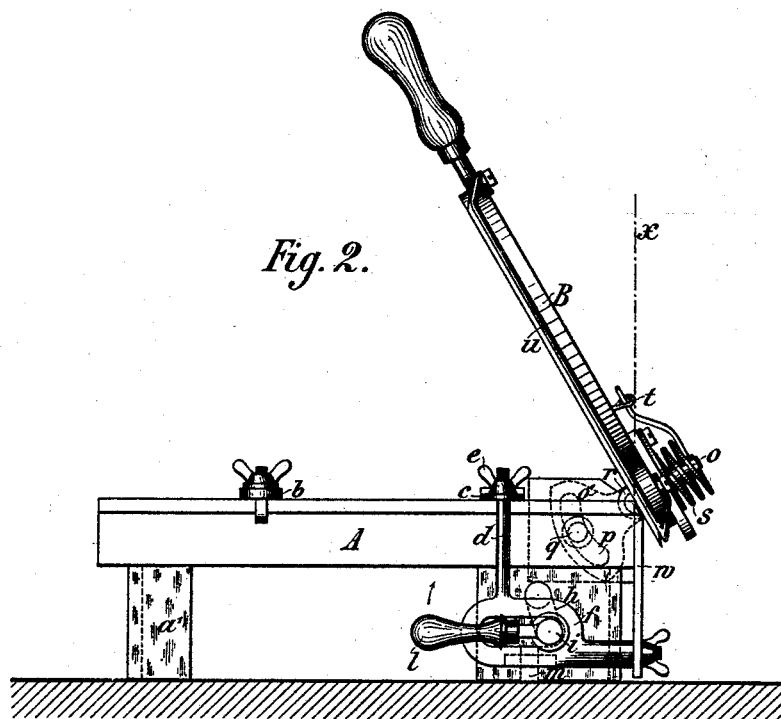
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6 Sheets—Sheet 3.

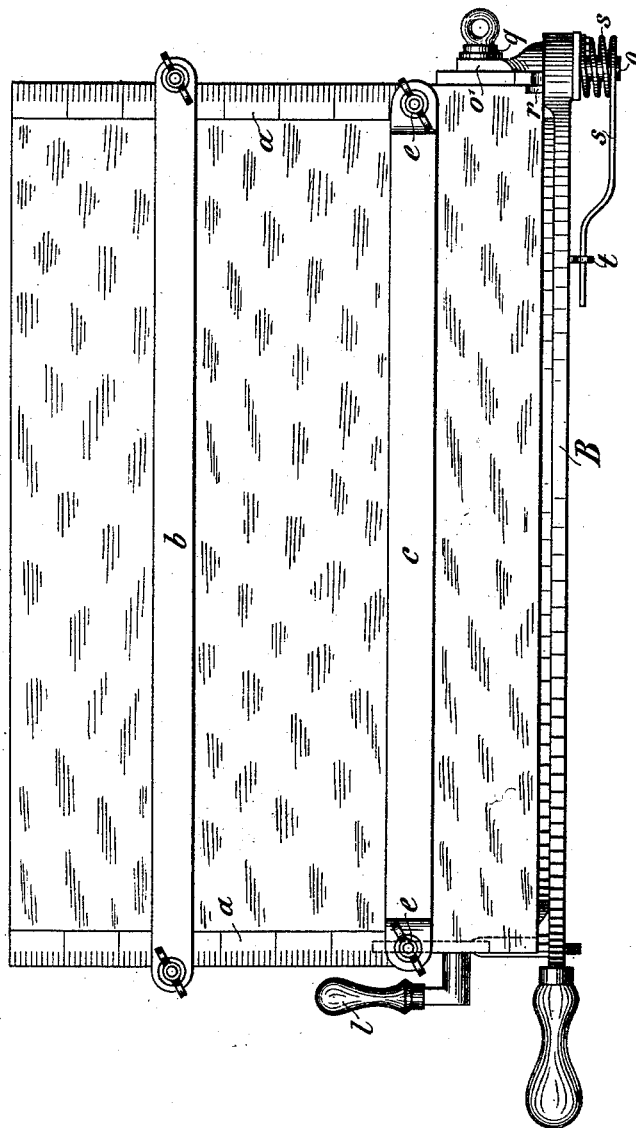
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Fig. 4.



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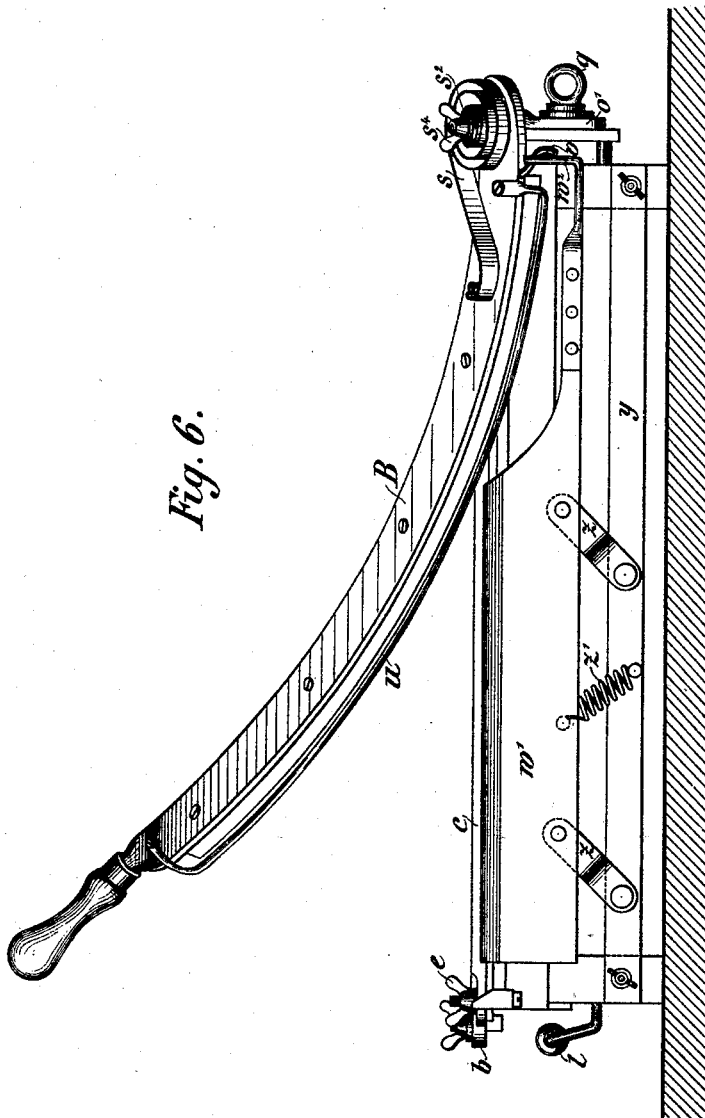
(No Model.)

6 Sheets—Sheet 4.

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No. 524,638.

Patented Aug. 14, 1894.



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A. KRAH.

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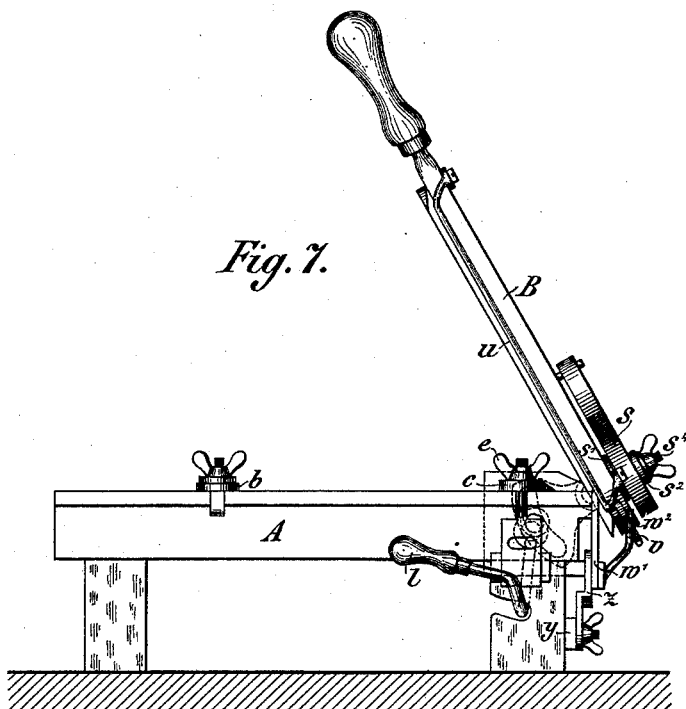
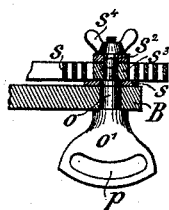


Fig. 9.



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(No Model.)

6 Sheets—Sheet 6.

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Patented Aug. 14, 1894.

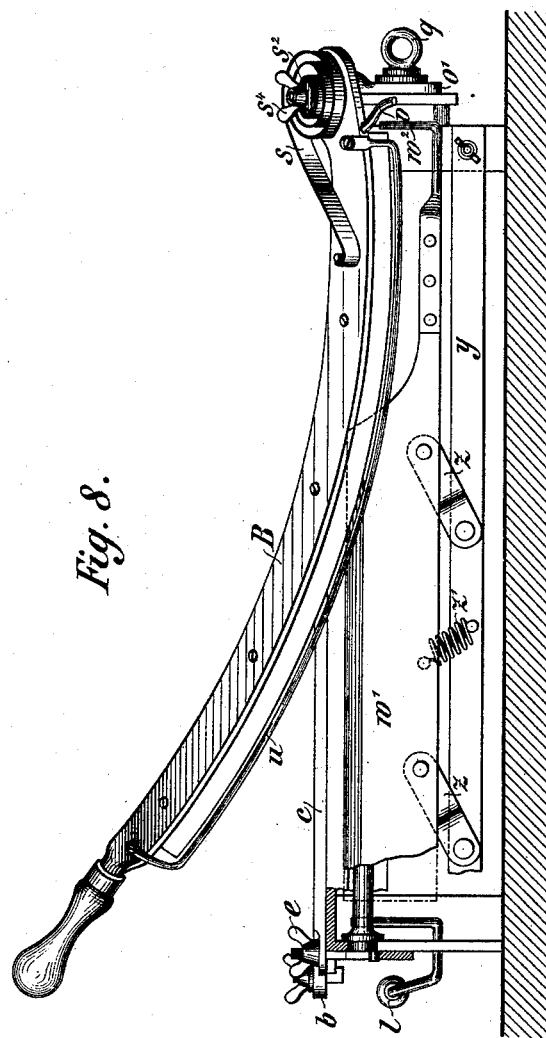


Fig. 8.

Witnesses:—
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Robert Elliott. By James L. Norris.
Attorney

UNITED STATES PATENT OFFICE.

ARMIN KRAH, OF BERLIN, GERMANY.

BEVELING-SHEARS FOR CARDBOARD.

SPECIFICATION forming part of Letters Patent No. 524,638, dated August 14, 1894.

Application filed June 23, 1892. Serial No. 437,724. (No model.) Patented in England January 27, 1892, No. 1,655, and February 21, 1893, No. 3,849; in Sweden February 15, 1892, No. 4,086; in Germany March 26, 1892, No. 65,522, and in Austria-Hungary July 4, 1892, No. 5,860 and No. 18,550, and June 24, 1893, No. 11,304 and No. 24,313.

To all whom it may concern:

Be it known that I, ARMIN KRAH, a subject of the King of Prussia, and a resident of Berlin, Germany, have invented certain new and useful Improvements in Beveling-Shears for Cardboard, (for which I have obtained patents in Germany, No. 65,522, dated March 26, 1892; in England, No. 1,655, dated January 27, 1892, and No. 3,849, dated February 21, 1893; in Austria-Hungary, No. 5,860 and No. 18,550, dated July 4, 1892, and No. 11,304 and No. 24,313, dated June 24, 1893, and in Sweden, No. 4,086, dated February 15, 1892,) of which the following is a specification, reference being had to the accompanying drawings.

The paper cutting machine which forms the subject of the present invention which is designed for cutting or trimming bookbinders' material or strong paper, cardboard, pasteboard, millboard, strawboard and the like is characterized by the fact that it will trim edges at any desired angles while the adjustment of the obliquity of the cut is rapidly and conveniently effected. The machine is further provided with a stop bar which is lowered automatically and with a peculiar device for bringing the knife back into its raised position as soon as it has acted and to hold it thus steadily in order to prevent accidents which may result from a careless and untimely release of the knife.

In the accompanying drawings Figure 1 is a front view of the machine. Figs. 2 and 3 show side views of the same. Fig. 4 is a plan thereof. Fig. 5 shows the mechanism for adjusting the knife. Figs. 6 to 9 show other views which are hereinafter referred to.

The table A of the machine upon which is placed the board or paper requiring to be cut or trimmed is furnished with feet *a'* and scales *a* Fig. 4 along its two extreme edges whereby the size of that part of the board or paper which has to be cut off can be properly adjusted if required. The pressure bar *c* serves to tightly hold the paper or board while it is being cut, and must be accordingly raised and lowered in order to push the board under it and fix it in position. This arrangement is shown more particularly in Figs. 2, 3

and 5, the bar *c* being fixed at its two ends to the draw rods *d* by means of screw threads upon which move two fly nuts for the purpose of adjusting the bar and raising or lowering it according to the thickness of the board or paper.

The draw rods *d* are terminated below with an enlargement having the form of a slotted guide *f* in which a pin or journal *i* can be moved. The pins *i* form part of a short crank handle *h* the axis *k* of which is arranged under the table (Fig. 1) and connects the two pins together or is formed preferably in one piece therewith. Upon one of the two pins *i* is mounted a handle *l* by means of which the shaft *k* and the cranks *h* can be brought into the two positions shown in Figs. 2 and 3, the position of Fig. 3 corresponding to the highest position of the bar *c* when the board can be slipped under the same while that illustrated in Fig. 2 corresponds to the lowest position of the said bar when it is tightly pressed upon the same board. While in this latter position the cranks *h* are vertical or nearly so, and the draw rods cannot be raised again automatically. To better guide the piece *f* a slot *m* is formed in the front feet of the frame wherein moves a projection or extension of the said piece *f*.

The knife B is such as ordinarily used in paper cutting machines, the manner in which it is fixed being merely different, as changes in the direction of obliquity of the cuts have to be provided for. For this purpose the knife is arranged to pivot at one end upon a pivot or axis *o* which terminates in an enlargement or extension *o'* Fig. 5 capable of being screwed or otherwise fixed to the side of the table by means of a thumb screw *q* passing through a curved slot *p* formed therein. This pivot *o* is capable of turning upon a second pivot *r* arranged perpendicularly to the same, whereby this pivot is so situated (Figs. 2 and 3) that the cutting plane of the knife passes accurately through its longitudinal axis. The said knife can likewise be turned upon this pivot after the thumb screw *q* is loosened, so that the obliquity of the cut may be altered at will. The knife plane may thus

be placed in a vertical position as shown in Fig. 2 by the dotted line z , in which case the board is cut straight, the oblique blade having thus been converted into an ordinary straight cutting blade.

Upon the axis o is coiled a stout spiral spring s the free extremity of which passes through an eyelet t fixed to the knife. This spring is so tightly stretched or coiled as to always raise the knife into the position shown in Fig. 1. This is intended to prevent any possibility of an accident because as soon as the knife is released it will spring upward again and hence can never drop down upon the fingers of the operator's hand. To further provide against accidents such as taking hold of the knife with the hand a projecting wire u is arranged in close proximity to the knife blade so that the edge thereof cannot be touched.

When the board or paper requiring to be operated upon is previously cut to the right size as usual and it is desired to cut the edges thereof obliquely the scales can be dispensed with, the guide bar w being used instead. The two ends of this bar or rail are bent down at right angles and are screwed to the two guides f by means of the fly nuts y so that the said bar may be moved up and down at the same time as the pressure bar c .

In the position shown in Fig. 3 the bar or rail w which is sharply beveled in front is raised to such a height as to allow of the board being safely laid thereon and as the pressure bar is moved down by turning the handle l , the rail w is likewise depressed and the knife B is free to cut, Fig. 2. The bar or rail w may also be raised and lowered in a different manner as shown in Figs. 6, 7 and 8. In this case the bar or rail marked w' is not connected to the pressure bar c , but with the knife B so that when the latter descends for cutting purposes the rail w' is lowered automatically therewith, being likewise raised as the knife springs up. For this purpose the rail w' is coupled to another rail y secured to the frame by means of the parallel connecting pieces z , the bar w' moving up and down like a parallel rule. The spring z' arranged between the two pieces z , has a tendency to pull down the bar w' . A pin v is fixed to the lower end of the knife B in close proximity to its fulcrum o and strikes, when the knife springs up, against a stop piece w^2 of the bar w' . Fig. 8 shows the bar in its lowest position that is to say, when the pin v is away from the stop w^2 ; when the cutting is done and the knife is raised, the pin meets the stop w^2 , Fig. 6 and moves the bar from right to left thus lifting the same. This arrangement has, as compared with that shown in Figs. 1 to 5 the advantage that the bar is moved automatically with the knife and not with the pressure bar the contact between the knife and the bar w' being thus prevented in case it had been forgotten to move down the said pressure bar c . The

spring s is, as shown in Fig. 9, firmly connected with a ring s^3 movable about the axis of the pivot o for the purpose of altering the height of the knife in accordance with the length of the board which is to be cut. This ring is tightly clamped in any suitable position through the medium of the washer s^2 and fly nut s^4 , which washer being quadrangular in shape cannot turn upon the pivot o .

In order to adjust the knife to a height suitable for the length of the board to be cut the fly nut s^4 is loosened, the knife is raised to the desired height and the said nut is tightened again so that after cutting, the knife will now constantly spring back to the height thus fixed.

The spring s with or without the adjusting means as well as the adjustable pressure bar c may also be used in straight paper cutting machines.

What I claim is—

1. The combination with a table A , and a cutter B , of the draw-rods d having slotted guide pieces f , the pressure bar c extending over the table and adjustable on the draw-rods, and the shaft k located beneath the table and having a handle l , and cranks h engaging the slots of the guide pieces for raising and lowering the draw-rods and pressure bar, substantially as described.

2. The combination with a table A , and a cutter B , of draw-rods d having slotted guide pieces f , the pressure-bar c adjustable on the draw-rods, the shaft k having a handle l and cranks h engaging the slots of the guide pieces for raising and lowering the draw-rods and pressure-bar, a vertically movable guide-bar or rail, and means for moving the guide-bar or rail, substantially as described.

3. The combination with a table A , and a cutter B adjustable to vary obliquity of cut, of the draw-rods d having slotted guide pieces f , the pressure-bar c adjustable on the draw-rods, the shaft k having a handle l and cranks h engaging the slots of the guide pieces for raising and lowering the draw-rods and pressure-bar, a guide-bar or rail provided with a sharply beveled edge, and means for moving the guide-bar or rail, substantially as described.

4. The combination with a table A , and a swinging cutter B provided with a pin b , of the vertically movable guide bar or rail w' , the rail y , and the parallel oblique pieces z pivoted to the guide bar or rail w' and to the rail y , said pin on the knife acting on the guide rail or bar to move the latter upwardly as the knife rises, substantially as described.

5. The combination with a table A , and a swinging knife B , of the pivot pin o , the fixed washer s^2 , the ring s^3 movable on the said pivot, the spring s connected with said ring, and the nut s^4 on the pivot, substantially as described.

6. The combination with a table A , an ad-

justable pivot *o*, and a cutter *B* mounted on
said pivot, of the draw rods *d* having slotted
guide pieces *f*, the pressure bar *c* adjustable
on the draw rods, and the shaft *k* having a
5 handle *l* and cranks *h* engaging the slots of
the guide pieces, substantially as described.

In testimony that I claim the foregoing as

my invention I have signed my name in pres-
ence of two subscribing witnesses.

ARMIN KRAH.

Witnesses:

J. LEMAN,

A. FISHER.