

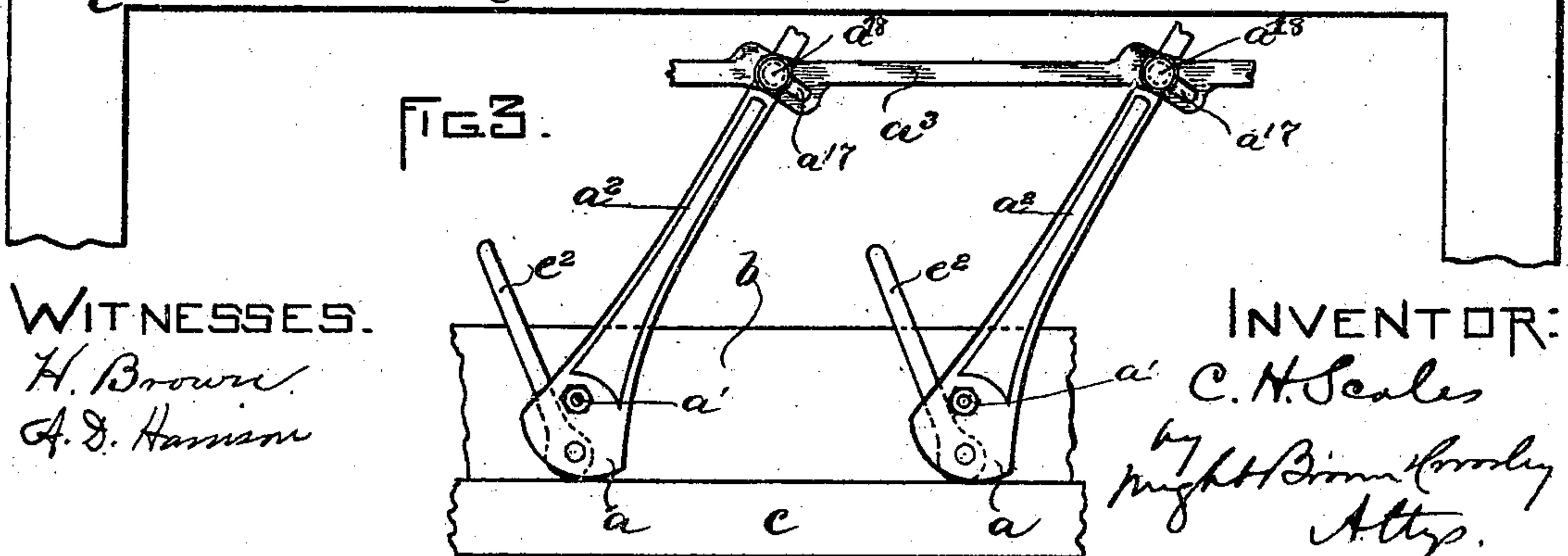
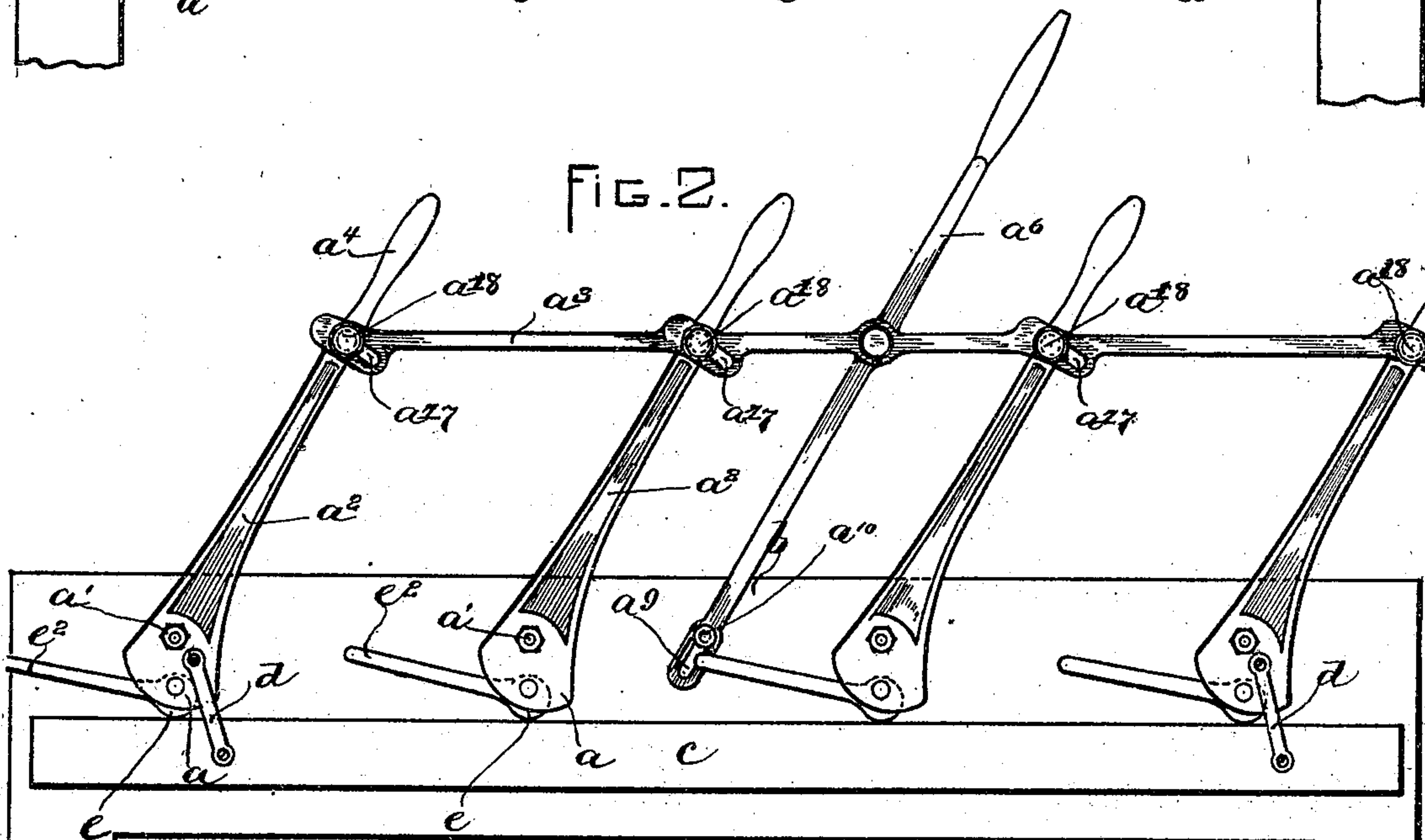
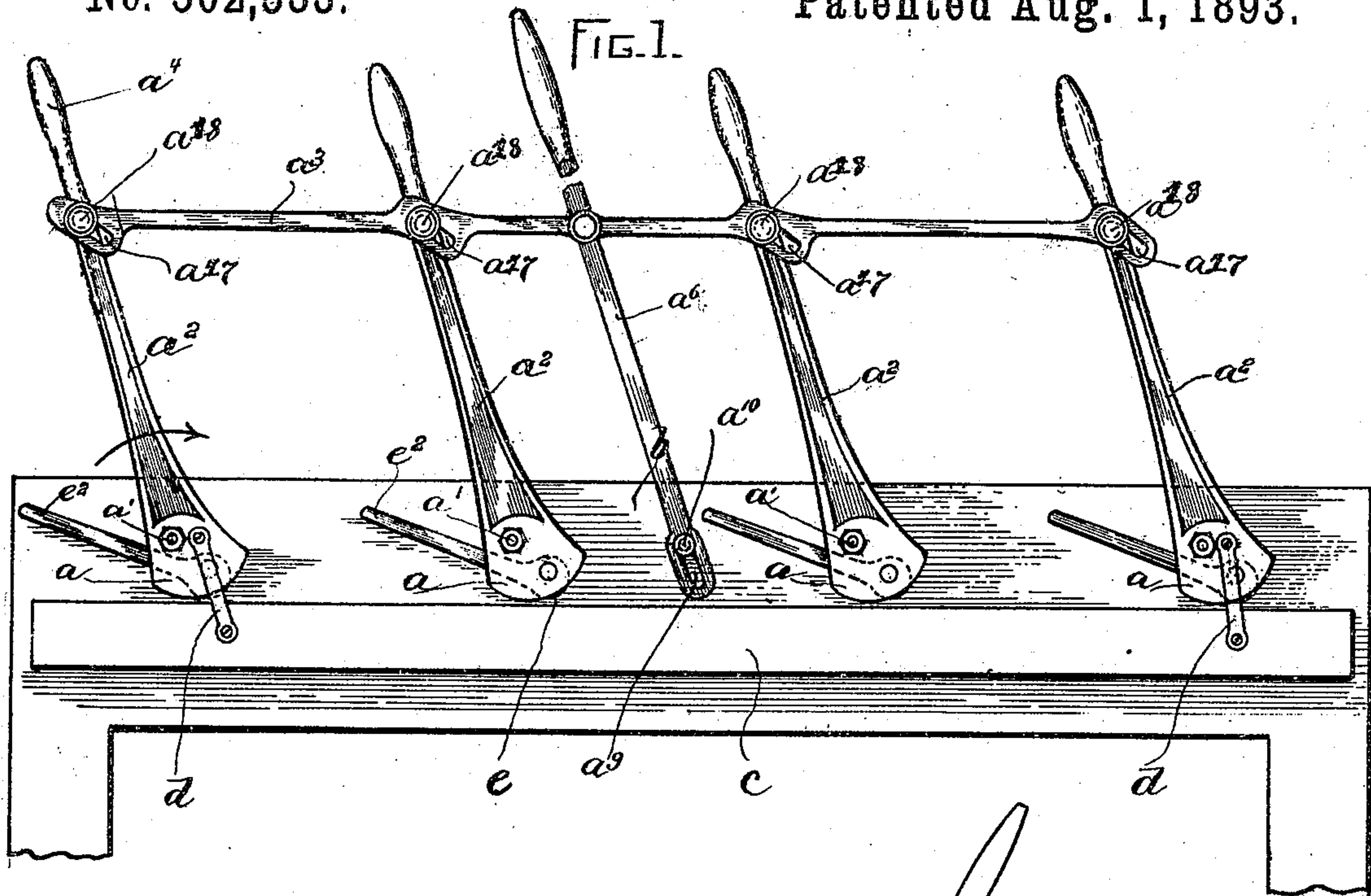
(No Model.)

2 Sheets—Sheet 1.

C. H. SCALES.
FURNITURE CLAMP OR PRESS.

No. 502,533.

Patented Aug. 1, 1893.



WITNESSES.
H. Brown
A. D. Harrison

INVENTOR:
C. H. Scales
by *Wm. B. Brown*
Atty.

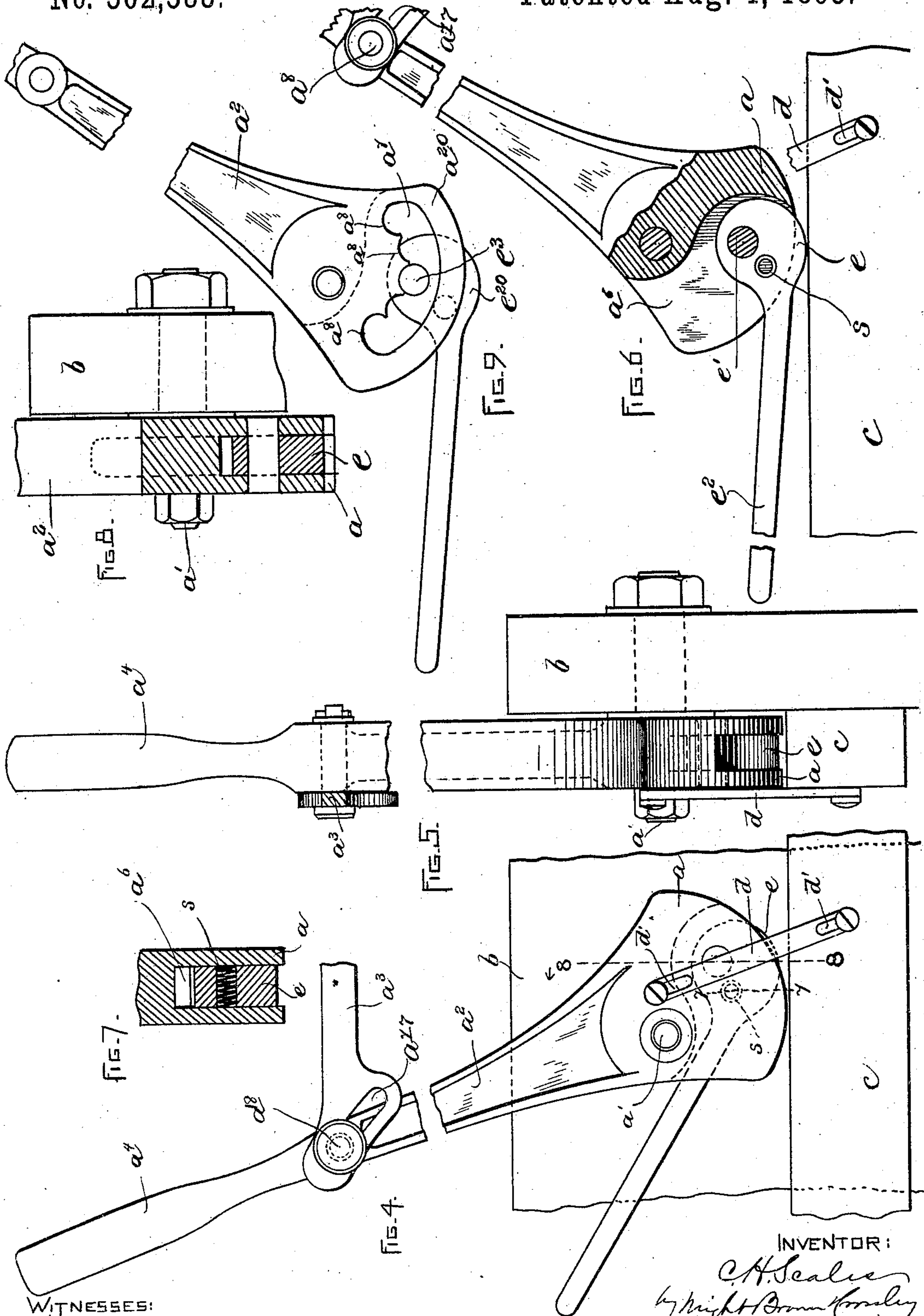
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WITNESSES:
H. Brown.
A. D. Hanson.

INVENTOR:
C. H. Scales
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Atty.

UNITED STATES PATENT OFFICE.

CARM H. SCALES, OF LEOMINSTER, MASSACHUSETTS.

FURNITURE CLAMP OR PRESS.

SPECIFICATION forming part of Letters Patent No. 502,533, dated August 1, 1893.

Application filed July 22, 1892. Serial No. 440,911. (No model.)

To all whom it may concern:

Be it known that I, CARM H. SCALES, of Leominster, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Furniture Clamps or Presses, of which the following is a specification.

This invention relates particularly to the clamps used in piano and cabinet manufacturing establishments to press two pieces of wood firmly together while a film of glue between said pieces is drying or hardening.

The invention has for its object to provide a simple and effective clamp or press of this class, adapted to be quickly operated to apply pressure at a considerable number of points simultaneously, and to enable the pressure to be increased, if desired, at any one or more of said points independently of other points.

To these ends, the invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming part of this specification: Figure 1 represents a side elevation of a clamp or press embodying my invention, the parts being shown in the position they occupy before the application of pressure. Fig. 2 represents a similar view, showing the parts after pressure has been applied. Fig. 3 represents a side elevation of a portion of the construction shown in Figs. 1 and 2, showing a different adjustment of the secondary cams from that shown in Fig. 2. Fig. 4 represents a side elevation on a larger scale, showing one of the pressure cams. Fig. 5 represents an edge view of the construction shown in Fig. 4. Fig. 6 represents a view similar to Fig. 5, parts being broken away, and the cams shown in different positions from those shown in Fig. 5. Fig. 7 represents a section on line 7—7, Fig. 4. Fig. 8 represents a section on line 8—8, Fig. 4. Fig. 9 represents a side view of one of the cams, showing means for adjusting the fulcrum of the auxiliary cam.

The same letters of reference indicate the same parts in all the figures.

In carrying out my invention, I provide a series of cams a , each pivoted at a' to a fixed support or frame-work b . On each cam is formed a lever a^2 , all the levers projecting

in the same direction, as shown. The outer ends of the levers a^2 are connected by a rod or bar a^3 , which is pivotally secured to the levers, and causes a swinging movement imparted to either lever of the series to be imparted to all the other levers, so that all the cams are moved in unison.

c represents a caul or platen, which is located below the cams, the arrangement of the cams with reference to the caul being such that, when the cams are moved in the direction indicated by the arrow in Fig. 1, their perimeters will be caused to approach the caul and press the latter downwardly upon a piece of wood placed below it, said piece resting upon a suitable fixed support or table (not shown), located below the caul. It will be seen that, by moving the cams from the position shown in Fig. 1 to that shown in Fig. 3, the cams will be caused to simultaneously exert a downward pressure upon the caul, each cam being caused to act in unison with the others, so that the caul is pressed downwardly at as many different points as there are cams in the series. A movement of the cams back to the position shown in Fig. 1 relieves the pressure on the caul, and may be caused to raise the caul slightly by connecting the caul with two or more of the cams by means of links d , each pivotally connected at its lower end to the caul, and at its upper end to one of the cams, the pivotal connection of the links to the cams being so arranged that the movement of the cams from the position shown in Fig. 3 to that shown in Fig. 1 will give the caul a bodily upward movement. The links may be provided at their ends with slots d' (Fig. 4) which receive the pivot pins that connect said links to the caul and cams. Each of the levers a^2 is extended to form an operating handle a^4 . a^6 represents an operating lever connected with the support b and with the rod or bar a^3 , said lever being longer than the levers a^2 , so that the operator can exert greater power on the cams by its use.

I do not limit myself to the employment of the connecting links d , as, if desired, the caul may be left entirely loose, so that when the cams are raised the caul may be entirely removed from the machine. I prefer to employ the links however, as they constitute a means

for retaining the caul in place and for holding it in a raised position while the work is being inserted and removed.

I prefer to provide each cam a with an auxiliary cam e , pivoted to the cam a at e' and provided with an operating handle or lever e^2 , the cam e being arranged so that when its lever is raised, as shown in Fig. 3, its perimeter will not be in position to exert pressure upon the caul. When the cam lever e^2 is depressed, as shown in Figs. 2 and 6, the cam e is caused to exert an additional pressure on the caul. The series of cam levers e^2 are not connected, so that each lever e^2 and cam e are adapted to be operated independently; hence additional pressure can be exerted upon the cam by one or more of the auxiliary cams e , as may be desired; or, in other words, the pressure at any one or more of the main cams a can be increased without increasing the pressure at all of the cams a ; or, if desired, all the auxiliary cams may be caused to exert a pressure at the same time upon the caul.

It will be seen that, by providing the auxiliary cams, adapted to be operated independently, I am able to either exert pressure at one or more points along the series of cams without exerting extra pressure at all of the points on which the cams act; or to increase the pressure along the entire series of cams by a series of successive steps, so that, after pressure has been applied simultaneously by the operation of the cams a at all the points on which said cams bear, additional pressure may be imparted by degrees by operating the cam levers e^2 successively, pressure thus applied being cumulative.

To prevent the cams e from moving loosely or dropping below the cams a by their own weight, I provide each of the cams e with a retarding device, which is preferably a helical spring s (Figs. 4, 6 and 7), inserted in a cavity formed in the cam e and bearing at its ends against the inner sides of the slot a^6 formed in the cam a for the reception of the cam e . The contact of the ends of the spring s with the sides of the said slot causes sufficient resistance to the swinging movement of the cam e to hold it in any position at which it may be left by the operator. I do not limit myself to this form of brake or retarding device, and may use any other suitable means for accomplishing the same purpose.

In Fig. 9, I show a cam a^{20} which is a modification of the cam a and is provided with a slot a^7 , having in one side a series of recesses or seats a^8 , each adapted to engage trunnions e^3 affixed to a cam e^{20} which is a modification of the cam e , said slot, recesses and trunnions enabling the cam e^{20} to be adjusted relatively to the pivot or axis of the cam a^{20} , so that the pressure of the cam e^{20} may be varied within certain limits.

I do not limit myself, so far as the combination of a main or primary cam and an auxiliary cam pivoted thereto is concerned, to a series of said cams, as a single primary cam

having a single auxiliary cam will produce a useful result, and is within the scope of my invention.

I prefer to provide the rod or bar a^3 with slots a^{17} arranged to receive the bolts or pins a^{18} that connect the levers a^2 with the rod a^3 . Said slots are of such form that when the levers have been thrown simultaneously to the position shown in Figs. 2 and 3, the pins or bolts a^{18} that connect the rod with the levers a^2 will be at the upper ends of the slots so that the slots will allow a further downward movement of each lever a^2 and an additional pressure of its cam a on the caul. The upper ends of the slots are pressed against the pins a^{18} by the movement of the rod a^3 involved in throwing the levers a^2 to the position shown in Figs. 2 and 3, and when the levers have been so thrown, the slots a^{17} are arranged to permit an independent additional movement of each lever a^2 , so that the pressure or throw of each cam can be considerably varied, the slots a^{17} enabling the pressure to be exerted simultaneously, as will be readily seen. The slots a^{17} and pins or bolts a^{18} constitute sliding connections between the levers a^2 and rod a^3 , said connections permitting each lever and its cam to be moved independently to a limited extent.

The lever a^6 has a slot a^9 which receives the pivot bolt a^{10} on which the lever a^6 oscillates. Said slot permits the lever a^6 to rise (when it is being moved to release the pressure) sufficiently to move the rod the distance required to bring the lower ends of the slots a^{17} against the pins a^{18} , thus enabling the rod to move the levers a^2 back to the position shown in Fig. 1.

It is obvious that the cams a , connected and operated as described, may be used without the auxiliary cams e .

I claim—

1. In a clamp or press, the combination with a caul or platen, of a series of cams pivoted to a fixed support above the caul and arranged to approach and recede from the caul when moved on their pivots, each cam having a lever, and a rod connecting the series of levers whereby the cams may be moved in unison, and sliding connections between the levers and rod, whereby each lever and cam are permitted to move independently of the rod, as set forth.

2. In a clamp or press, the combination with a caul or platen, of a series of cams pivoted to a fixed support, each cam having a lever, a rod extending across the series of levers and provided with a series of slots, and pins or studs on the levers adapted to play in said slots, the said slots enabling either lever to be given an additional pressing movement independently of the others, as set forth.

3. In a clamp or press, the combination with a caul or platen, of a series of cams pivoted to a fixed support, each cam having a lever, a rod extending across the series of levers and provided with a series of slots, pins or studs

on the levers adapted to play in said slots, and an operating lever pivotally connected near one end with a fixed support and connected also with said rod, said operating lever having a slot receiving the pivot that connects it with the fixed support, as set forth.

4. In a clamp or press, the combination of a series of primary cams, each having a lever, a rod connecting said levers in a series whereby the cams may be caused to exert pressure simultaneously, and a series of auxiliary cams pivoted to the main cams and provided with independent operating levers whereby additional pressure may be cumulatively exerted, as set forth.

5. A primary cam pivoted to a fixed support and provided with an operating lever, combined with an auxiliary cam pivotally connected with the primary cam and provided with an operating lever, as set forth.

6. The combination of a primary cam piv-

oted to a fixed support and provided with an operating lever, an auxiliary cam pivotally connected with the primary cam and provided with an operating lever, and a retarding device whereby loose movement of the auxiliary cam is prevented, as set forth.

7. A primary cam pivoted to a fixed support and provided with an operating lever and with a slot having a series of seats or bearings, combined with an auxiliary cam having a trunnion adapted to be engaged with either of said bearings, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 16th day of July, A. D. 1892.

CARMI H. SCALES.

Witnesses:

SAMUEL WHITTIER,
JOHN M. LOCKEY.